MECCANO® Magazine

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QUARTERLY

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IT'S SHOW TIME!

ONCE AGAIN, Meccano Exhbition time is rolling round and this year promises to be better than ever before. Already many Clubs around the world have put on model displays at fetes and shows, both large and small, and virtually all have reported increased attendance and interest among visitors.

However, it is not my wish, here, to look back at past events, but rather to look forward to two forthcoming exhibitions which promise outstanding Meccano presentations.

STONELEIGH CARNIVAL

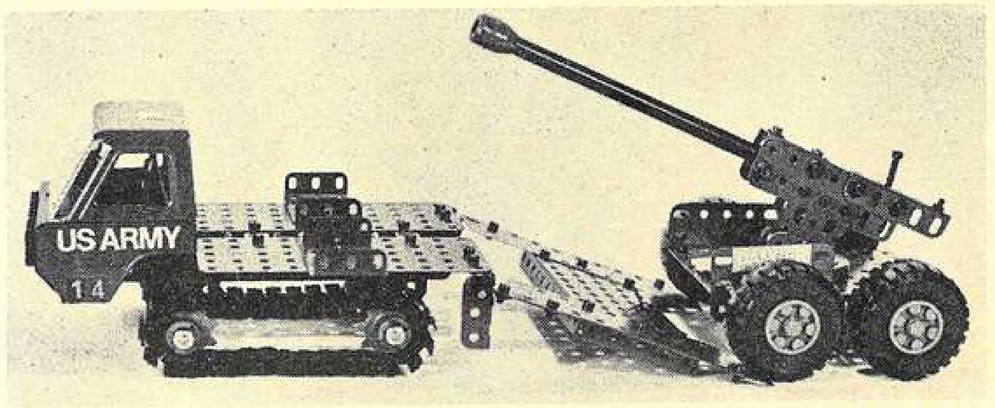
Taken in chronological order, the first of these is the Stoneleigh Summer Carnival which will be held at the Royal Agricultural Showground at Stoneleigh near Kenilworth, Warwickshire from 24th to 26th August. The Carnival is a large, general show and will, of course, have many diverse attractions, but the thing of particular interest to us will be a display mounted by the Midlands Meccano Guild. The Guild exhibited at the Carnival last year, when members supplied an amazing number of models. Because of its success, the Carnival organisers have invited the Guild back this year – with more space at their disposal. M.M.G. officers are confident that they can fill all the space, so we can expect a really bumper showing!

HENLEY EXHIBITION

Undoubtedly, the largest, most amazing Meccano show of all is the exhibition now held annually at Henley-on-Thames, Oxfordshire. Sponsored by M.W. Models of Henley, and first held in 1972, it has already become the highlight of the year, receiving the support of modellers from all over the country. It is, in fact, your own exhibition; you supply the models and all Meccano builders are welcome to show there. Indeed, I see from the Cape Town Meccano Club report on page 76 of this issue that a member hopes to bring a model all the way from South Africa this year!

In the past, the Henley show has been a one-day event, but, this year, as a result of countless requests, it is to extend over two-days – Friday 30th and Saturday 31st August. Day One is to be a closed session for exhibitors, their guests, MMQ readers and all bona fide Meccano modellers; Day Two will be for the general public as well as modellers (there were so many visitors at the show last year that exhibitors didn't have a decent chance to look round themselves!). The Organisers appreciate that some exhibitors will not be able to attend the Friday session; they will therefore be welcome to show on the Saturday only. Anybody wishing to exhibit should contact Mr. Geoff Wright at M.W. Models (see ad. for address).

COMPETITION



A competition winner at last year's Henley Exhibition.

One of the attractions at the Henley Exhibition is a model competition which this year has a Class for everyone. A full list of the competition classes appears on page 77 of this issue and anybody interested is welcome to 'have a go'. Full details and Entry Forms are available from the organisers upon receipt of a Stamped Addressed Envelope.

Remembering last year, one of the most interesting aspects of the competitions for me was the variety of very good 'new' and ingenious models that were entered. Just one example can be seen in our picture above which shows a copy of one of the winning models in the 'Multikit Competition'. Identified as a Tracked Transporter with Anti-tank Gun, it was designed by Nigel Dawes of Bicester, Oxon and it is built, of course, from an Army Multikit. We were particularly impressed with it and we plan to feature it in full constructional form in the next MMQ.

As in previous years, the venue for the Henley Exhibition is the Town Hall at Henley. Hope to see you there!

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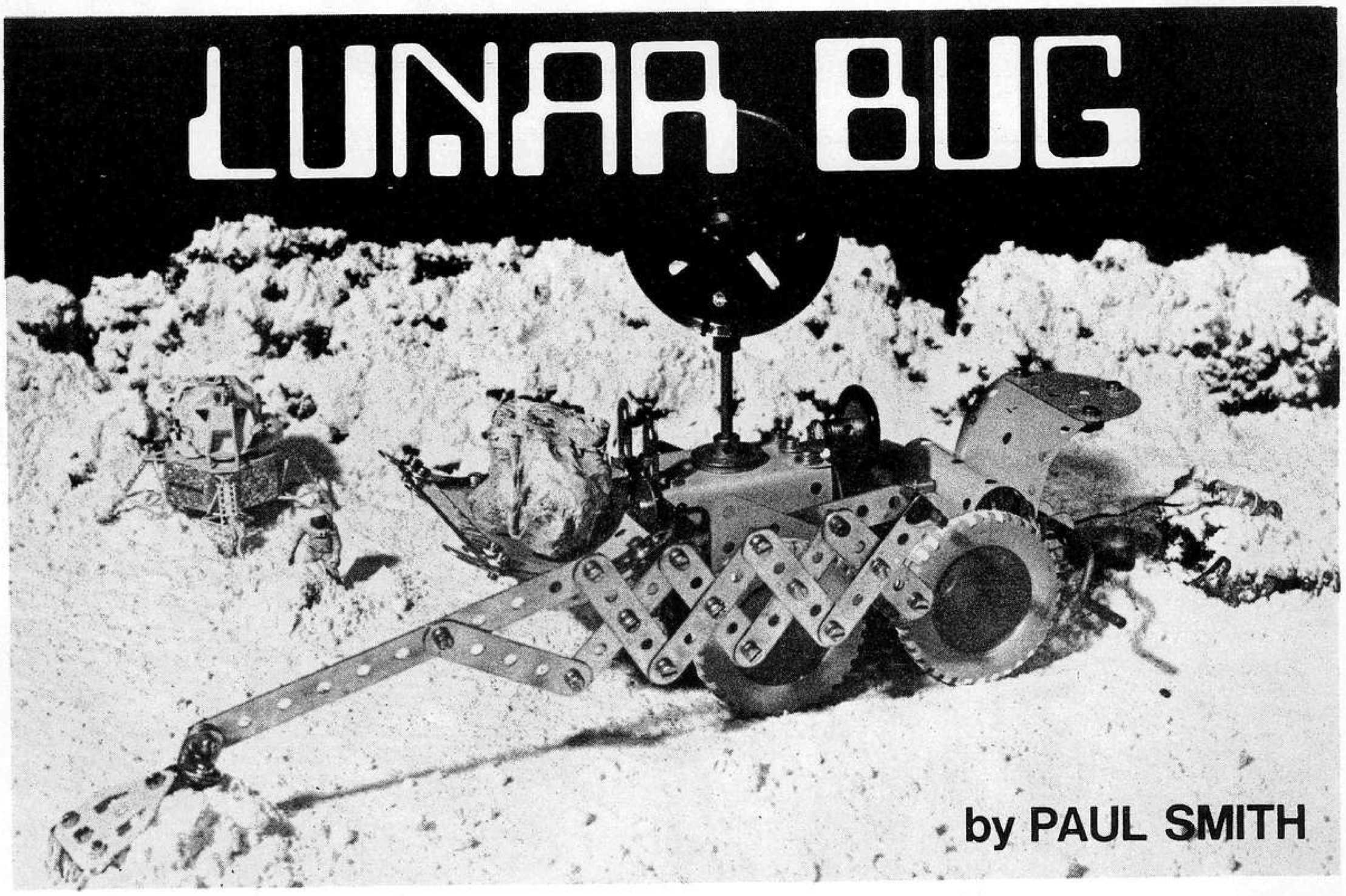
LUNAR BUG



by PAUL SMITH

DURING THE LAST few years, millions of people have crowded around their television sets to watch the Apollo missions to the Moon. Altogether twelve Americans were landed upon the lunar surface.

Excluding those items which were necessary to keep the Astronauts alive, the most useful and important item on the most recent missions was the Lunar Roving Vehicle (LRV), usually known as the Lunar Rover. The Lunar Rover was over 10 feet (3m) long and it weighed (on earth) 480 lbs (223.2 kg) unloaded.

These vehicles made their debut in Apollo Mission 15, and were used on a total of three missions. On the last Apollo Mission of all (Apollo 17) the Lunar Rover set the lunar speed record at 11.2 m.p.h. (18 km/h) and lunar distance record at 22.4 miles (35.8 km).

Otherwise known as the "Moon Buggy", the Rover allowed the Astronauts to travel long distances over the lunar surface, enabling them to pick up many different rock samples and to conduct a wide range of experiments. The Apollo 17 Rover carried, like the others, a TV camera. In this last Rover, however, an interesting system was used; that of "Real Time" control. This meant that the scientists at Mission Control in Houston could direct the camera in any direction they pleased using a type of radio control. The camera itself was moved about by small motors and solenoids. The Rover also carried special equipment for forming boreholes to investigate the composition of the lunar "soil"; digging equipment and collecting boxes for rock and other specimens, and experiments such as seismometers to measure lunarquakes and other "geological" disturbances. It carried a large antenna for the reception and transmission of radio and television signals. The Rover was itself powered by four electric motors.

The model that I am about to describe is an extremely abstract version of the above vehicle. It was originally designed by Richard Beer, a member of the Henley Society of Junior Meccano Engineers.

Vaguely in the shape of the real thing, it carries a number of interesting and very useful attachments which, for some reason, the Americans omitted on their version! The bulldozer blade is by far the most prominent addition, and it is very easy to operate. It can be tilted forwards and backwards by pulling and pushing on the Right-angled Rod and Strip Connector on the Rod beneath the steering wheel. When the control is pulled right back, the blade can be converted to a carrying tray by pushing the ends of the two 5½" Strips downwards. The 3" Pulley which represents the 'S'-Band antenna can be turned round easily by hand. The long, grabbing tong is extended and contracted by pushing the 1" Rod downwards.

At the very rear of the vehicle is a winch for dragging large rocks. When not in use, the winch's Hook is stowed in the Reversed Angle Bracket, just above the winch.

It is essential that Washers are placed under all Bolts that are in slotted holes, since the Bolts will otherwise rapidly come loose.

Chassis and Engine Unit

A 5½" Strip 1 and two ½" Angle Brackets are bolted to a 5½" x 2½" Flanged Plate. The Strip must be crossways in the centre of the Plate. At one end of the Plate, a Fishplate is secured to each side flange, leaving a ½" space before the end. Both Fishplates should point upwards. Two 3½" Strips 2 are bolted to the same end of the Plate as shown. Next, a 2½" Stepped Curved Strip is fixed to the bottom of Strips 2, while a 2½" x 1½" Flanged Plate,

two ¾" Washers and two ½" Angle Brackets 3 are also bolted to Strips 2, as shown. The Angle Brackets must be on the inside of the Plate with their slotted flanges facing upwards. A 4½" x 2½" Flexible Plate 4 is then bent to form a 'U'-shape, and each end of a 2½" x 1½" Flexible Plate 5 is bent to form a 'Z'-shape, after which the two Plates are bolted together to form a box with one side missing.

Before bolting the box to Angle Brackets 3, a ½" Angle Bracket 6 is fixed to the Plates, as shown, and a 3½" Rod is held in Plate 4's centre hole by two 1" Pulleys which press against the Plate. The assembly is now bolted to Angle Brackets. Also, Plate 5 is bolted to the 5½" x 2½" Flanged Plate as shown in the illustration.

Seats and the Winch

A 'U'-Section Curved Plate 7, a 2½" Curved Plate 8, a 2½" Stepped Curved Strip 9, two Fishplates and two ½" Double Brackets are all bolted together as shown, then a 2½" Semi-circular Plate is secured to Curved Plate 8, and a Reversed Angle Bracket secured in turn to the Semi-circular Plate. A 3½" Crank Handle is held by Spring Clips in the Double Brackets and a length of Cord is attached to this by means of a Cord Anchoring Spring. A large Hook is tied to the other end of the Cord which is of course wound round the Crank. The Hook is fastened to the Reversed Angle Bracket when not in use.

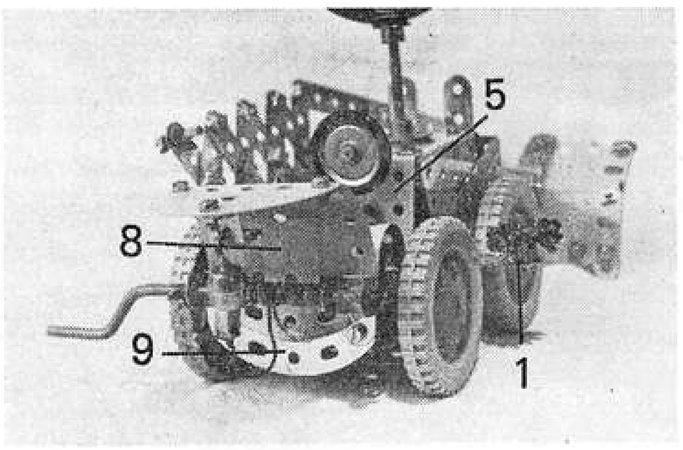
Dozer Blade and Controls

The dozer blade is built by bolting a 3" Formed Slotted Strip to each end of a 5½" x 2½" Flexible Plate, to the centre of which a Right-angled Rod and Strip Connector is fixed by a ¾" Bolt. A Rod and Strip Connector 10 is lock-nutted to the Right-angled Rod and Strip Connector. A ½" Angle Bracket is then bolted to the centre hole of two more 3" Formed Slotted Strips and to the spare lug of each of these a 5½" Strip is lock-nutted. The Slotted Strips are bolted to the back of the Flexible Plate which forms the dozer blade.

Journalled in the 2½" x 1½" Flanged Plate and Flexible Plate 5, as shown, is a 5" Rod, the front end of which is fixed in Rod and Strip Connector 10. The rear end of the Rod is fitted with a second Right-angled Rod and Strip Connector. Two 5½" Strips are lock-nutted through their fifth holes from their front ends to the 2½" x 1½" Flanged Plate, then the narrow end of a 2½" x 1½" Triangular Flexible Plate is bolted to each Angle Bracket 1, with the wide end of each Triangular Flexible Plate being bolted to the Fishplates mentioned above.

Extending Grab

To build the grab, nine 2½" Strips and a 5½" Strip are first lock-nutted together, then a ½" Angle Bracket is lock-nutted to the long end of the 5½" Strip and a Double Bracket is lock-nutted to the lower 2½" Strip at the other end. A 1" Rod is held in the upper 2½" Strip by two Spring Clips. One Flat Trunnion and four Obtuse Angle Brackets are used to build the actual grab, which is bolted to the ½" Angle Bracket on 5½" Strip 1. A Multi-purpose Gear Wheel is fixed to the other end of Strip 1 by tightening the Grub Screw against a 3/8" Bolt passed through the end hole of the Strip.



The Lunar Bug viewed from the rear.

Steering Wheel, Aerial and Wheels

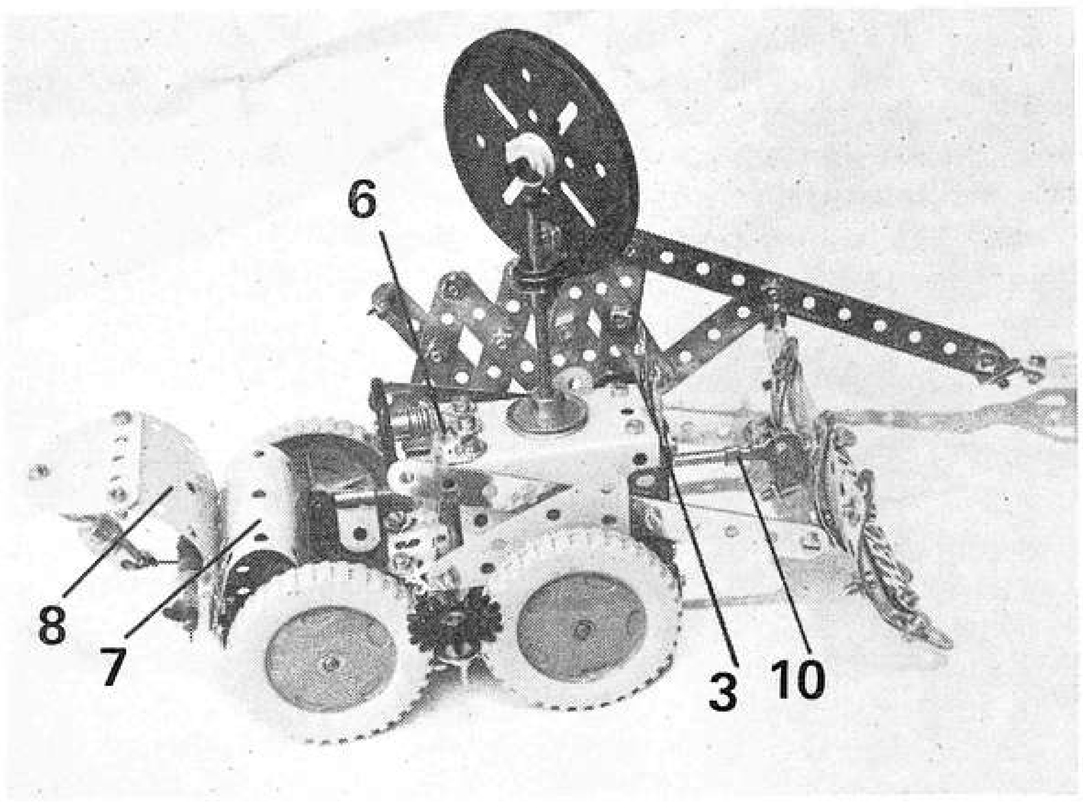
The steering wheel is a 1" Pulley with boss fitted with a Rubber Ring. It is lock-nutted to a ½" Angle Bracket 6 by a ¾" Bolt, but is spaced from the Bracket by four Washers. A ½" Angle Bracket is fixed by its round hole to a 3" Pulley, as shown. A 1½" Rod is mounted in the boss of the Pulley and held on this, towards the rear end, by a Spring Clip is a ½" Pulley without boss. A ½" Pulley with boss is fixed on the 3½" Rod and this is then connected to the 3" Pulley assembly by a 2½" Driving Band.

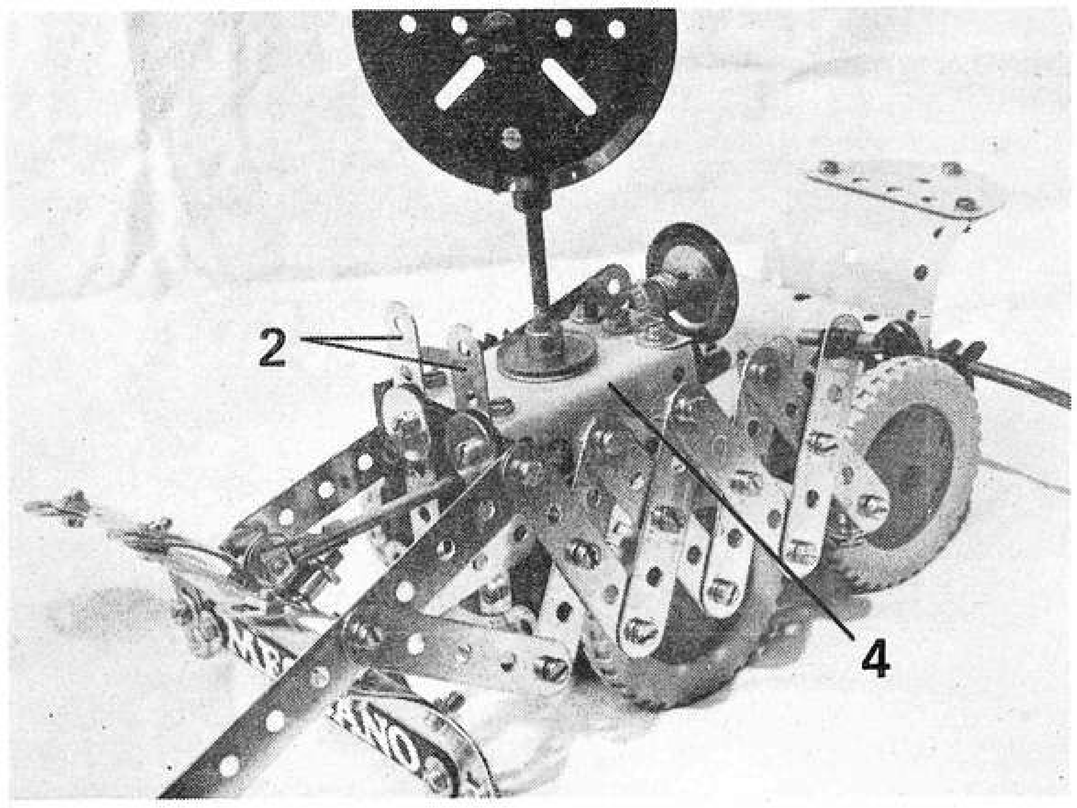
Finally, the (moon!) wheels are supplied by four 2½" Road Wheels fixed on 3½" Rods journalled in the chassis.

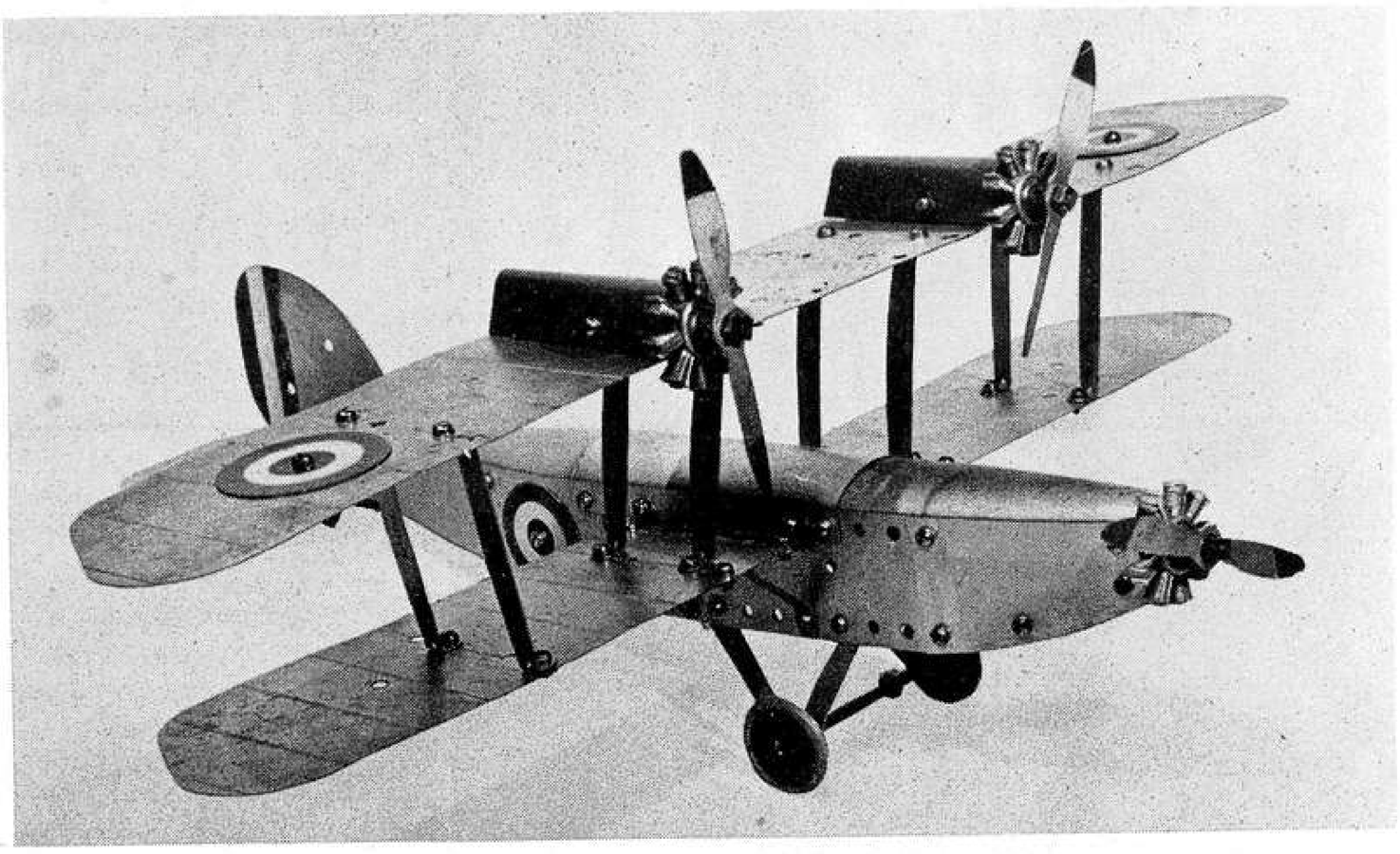
PARTS REQUIRED

4- 2	1-19s	1- 40	4-187
2- 3	3-22	1- 51	1-188
9- 5	1-23	1- 52	1-191
4-10	1-23a	1- 57c	1-192
3-11	1-27f	3- 90a	1-199
9-12	5-35	2-111	1-200
4-12c	93-37a/c	1-111c	1-212
1-15	70-37b	1-125	2-212a
3-16	20-38	1-155	1-214
1-18a	2-38d	1-186	4-215
1-18b			2-221

Opposite page: pictured in realistic setting, the Meccano Lunar Bug built by the author from an original design by Richard Beer. Below: two close-up views showing each side of the model. Note the scissor-type extending grab.







COLLECTORS' CORNER

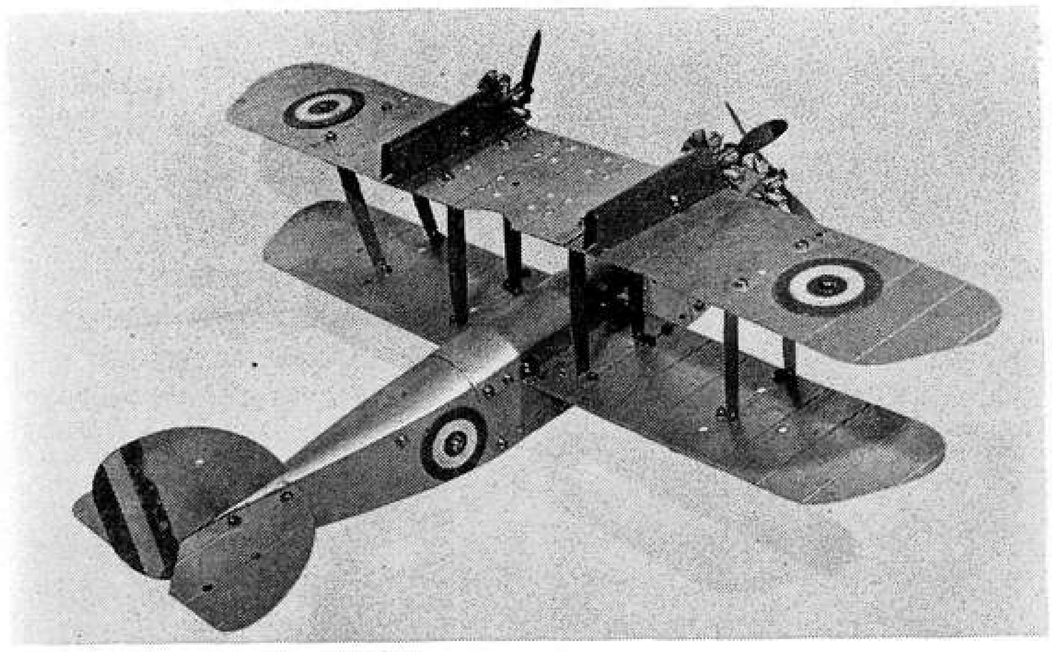
by B. N. Love

AEROPLANE OUTFITS

AS THE DECADE of the 1930's opened up, Frank Hornby put yet another new Meccano product on the market in the shape of the Aeroplane Constructor Outfits. Two of these were launched in 1931 with an illustrated announcement of "Splendid news, boys!" on the back cover of the Meccano Magazine for October and November 1930. Outfit No. 1 sold at 9 shillings and would build a small number of single-engined monoplanes and biplanes. In the No. 2 Outfit, a wider range of parts were included so that three-engined aircraft, including seaplanes, could be built and each outfit had four R.A.F. roundels included for fuselage and wing identification. This latter set cost 16 shillings and sixpence.

Fig. 1 shows a rather improbable three engined "military biplane" built by the author as an off-the-cuff example from the original 1931 No. 2 Outfit, for the purposes of illustrating this article. A No. 2 Outfit manual, printed as early as September 1931, showed 20 models, but so many combinations of wing arrangements were possible that dozens of different models could actually be designed. All of the parts were made from a thin gauge of metal – aluminium in the early sets for wing sections and tinplate for the fuselage – but were perforated with standard-size Meccano holes, spaced to make them interchangeable with other Meccano parts if required.

Above: Fig. 1, a rather improbable 3-engined military biplane built from an original No. 2 Meccano Aeroplane Constructor Outfit. Below: Fig. 2, another view of the biplane showing its realistic outline.

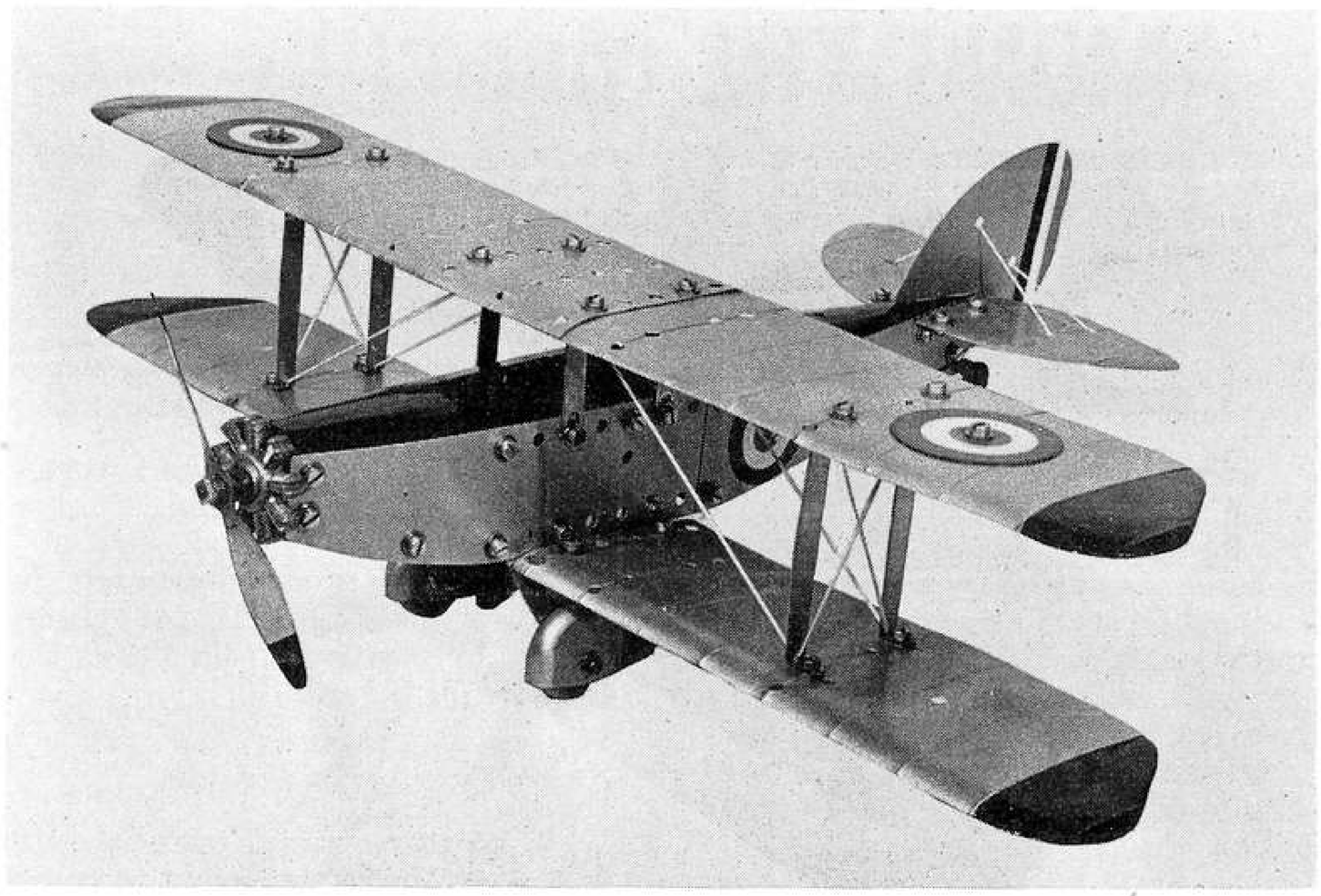


Following normal Meccano practice, an Accessory Outfit was available: No. 1a, for 8 shillings and sixpence, which would convert the No. 1 Outfit to the No. 2. Even at this early stage, two clockwork motors were available specifically for the Aeroplane Constructor Outfits. Motor No. 1. cost two shillings and would rotate the propellor at high speed. Motor No. 2, a more powerful and rugged version, would drive the landing wheels as well as the propellor, so that the model would taxi along in realistic manner. This motor cost four shillings and sixpence complete with special contrate and pinion shafts for the compound drive.

Each outfit had a well-illustrated manual, showing half-a-dozen models for the No. 1 Outfit and rather more for the No. 2 and the complete list of Meccano Aeroplane Parts was included on the back page together with the contents list for the two Outfits. One peculiarity was that a Radial Engine – Large, was listed as Part No. P46, but was the only component not included in either outfit. An illustration of this larger engine appears on Page 695 of the Sept. 1932 M.M. Outfit No. 1 had one Radial Engine – Small, and the No. 2 had three of the same type.

Although the introduction of the Aeroplane Outfits was a major departure by Binns Road in manufacturing an Outfit of purpose-made parts, standard Meccano parts could be used with them and competitions were run in the M.M. along these lines. Some examples are shown on Page 364 of the May 1932 M.M. Nuts and Bolts supplied for the Aeroplane Outfits were probably the best ever made by Meccano Ltd., being domed headed, polished and very well nickel plated. Those on the author's model in Fig. 1 are in mint condition after more than 40 years!

No. 2 Special Meccano Aeroplane Outfit.



Above: a reproduction taken from a 1931 Meccano Magazine, showing the No. 2 Special Aeroplane Outfit. Right: Fig. 3, a neat fighter biplane from a later Aeroplane Outfit. Note the wing style and landing wheels in "spats".

The Aeroplane Outfits were a success from the start, but they were constantly improved to reflect the changes in aircraft design which made rapid strides in the 1930's. By December 1932, major improvements and new parts were notified on Page 959 of the Meccano Magazine for that month, the most outstanding being the forming of a curvature in the wing surfaces which not only simulated an aerofoil shape on the upper surface, but added considerably to the strength of the wings. Prior to this, simple grooves had been rolled into the otherwise flat wing sections, but this gave them no laterial rigidity. Another striking improvement was the provision of landing wheel struts with 'spats' on them. These are clearly shown in Fig. 3 which shows a very neat biplane fighter by Roger Wallis of Solihull, to whom I am indebted for a second model to illustrate the text.

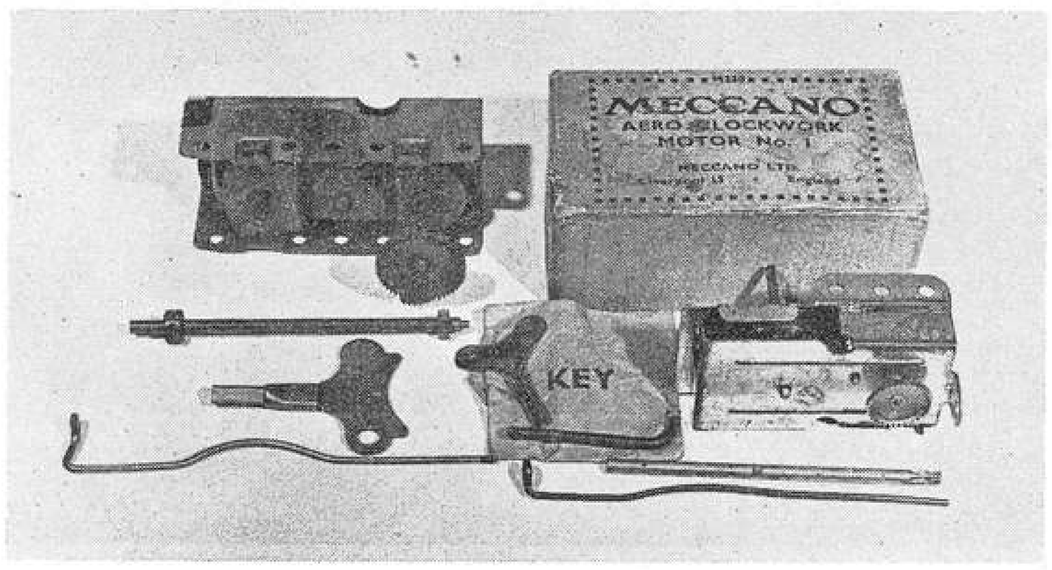
In 1933 an additional Aeroplane Constructor Outfit was introduced. This was the No. O Outfit which sold at five shillings and which would build both land and seaplanes, but its parts were of smaller overall size than the standard outfits and were not interchangeable with them. Perforations were smaller, assembly being by 4BA Nuts & Bolts – beautifully nickel plated. Competitions for Meccano Aeroplane Outfit models continued and illustrations of some of the prize-winning efforts appeared on Page 214 of the March 1933 M.M.

By January 1934, the M.M. was carrying advertisements for further Aeroplane Constructor Outfits which included the No. 1 and No. 2 "Special" Outfits, alongside the standard sets already mentioned. They were excellent examples of pressed tinplate work which has not been surpassed to this day and the sets were beautifully presented in colourful cartons with a wide range of colour schemes available. These were red and cream, blue and white and green and ivory. Many new parts were introduced in the "Special" Outfits which included radial engines fitted with cowls, airliner fuselage sections with passenger "windows", raised pressings for the pilot's cabin and the fitting of moving ailerons to the main and tail wings and a hinged rudder on the tail fin. Simple open-cockpit models were also catered for in the "special" Outfits which were probably the most attractive Meccano Outfits ever to come out of Liverpool.

A further novelty introduced with the "Specials" was the No. O Aeroplane Constructor Outfit, which sold at five shillings, being presented complete in a metal hanger and known as the No. O1P Aeroplane Hangar Outfit, marketed at ten shillings. So popular were the Aero Outfits that they outlived the decade, passing through a phase of export outfits in even more varied colour schemes with a host of foreign markings available for aircraft identification purposes. Even corrugated fuselage and wing sections – Junkers style – were on sale in the late 30's.

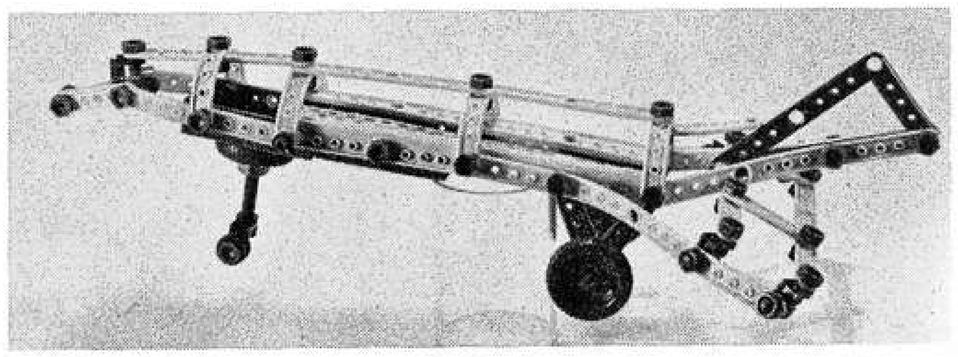
Second World War circumstances put the Meccano Aeroplane Outfits into camouflage colours and short supply until by the early 40's, production stopped – sadly, never to start again!

Below left: Fig. 4, showing the two clockwork motors made for the Aeroplane Outfits, No. 1 on the left and No. 2 on the right. Below right: Fig. 5, showing some of the additional items from the early outfits: floats, cast pilot, lacing cord, etc.



AMONG THE (YOUNG) MODEL-BUILDERS

with 'Spanner'



Plastic Meccano 'Concorde' from 4-year-old Charles Silverlock of Maidenhead, Berks. (Dad lent a hand!)

CIRCUMSTANCES HAVE combined to allow me only one page for 'Model-Builders' this issue, so, instead of going into anything in great detail, I thought I would devote the limited space available to a general look at the work of just a few of our many younger readers. After all, young modellers are vital to the continued long-term existence of the Meccano hobby!

I say young - and you can't get much younger than the builder of the Plastic Meccano Concorde pictured here; 4-year old Charles Silverlock of Maidenhead, Berkshire! To be honest, of course, Charles was really a co-builder; he received a lot of help from his father, who is the manager of the Bear Hotel in Maidenhead. Nontheless, it is a very realistic model, built from a 300 set, and it certainly succeeds in capturing the general lines and "atmosphere" of the famous Anglo-French aircraft. Well done Charles!

The actual model illustrated, by the way, was re-built for photography by ourselves from details supplied by Mr. Silverlock.

GALLEON

If Charles built Concorde with help from dad, then eight year old Gavin Bultitude of Chalfont St.Peter, Buckinghamshire, must get full credit for designing and building himself the magnificent Galleon also illustrated here. Like the Concorde, we re-built the Galleon for photography from details supplied by Gavin and we were so attracted by it that we have kept it in one piece. It now serves as part of our office decoration and, with its tall masts, realistic outline and bright colours, it always catches the attention of our visitors.

The Galleon is a comparatively large non-outfit model, but for all its size, it is not difficult to make. I do not have space, here, to give full building details, but anybody wanting to re-produce it could probably do so from our photograph. All we had was a single 35mm. colour slide to go by!

FIELD GUN

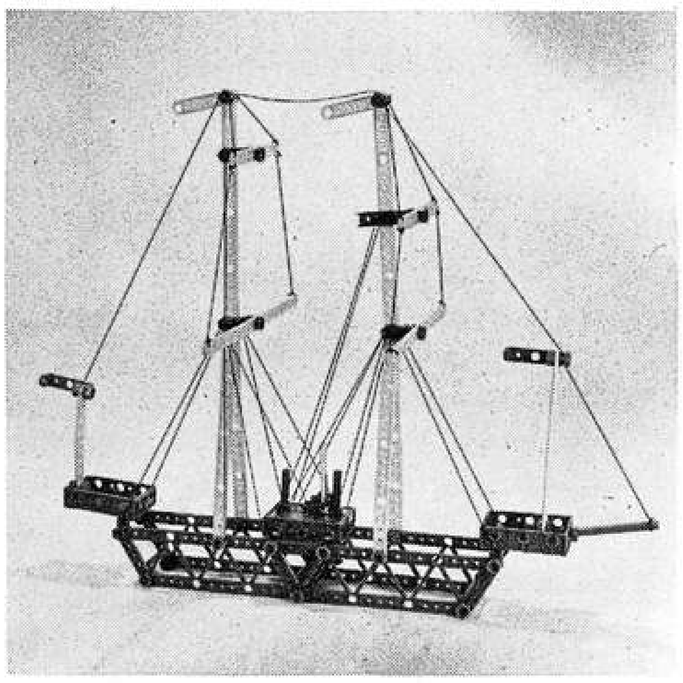
There should be absolutely no problem in building our third Plastic Meccano offering from the photographs here. They show a simple Field Gun, re-built from an original design, the full credit for which goes to 6-year-old Matthew Terry of Colchester, Essex.

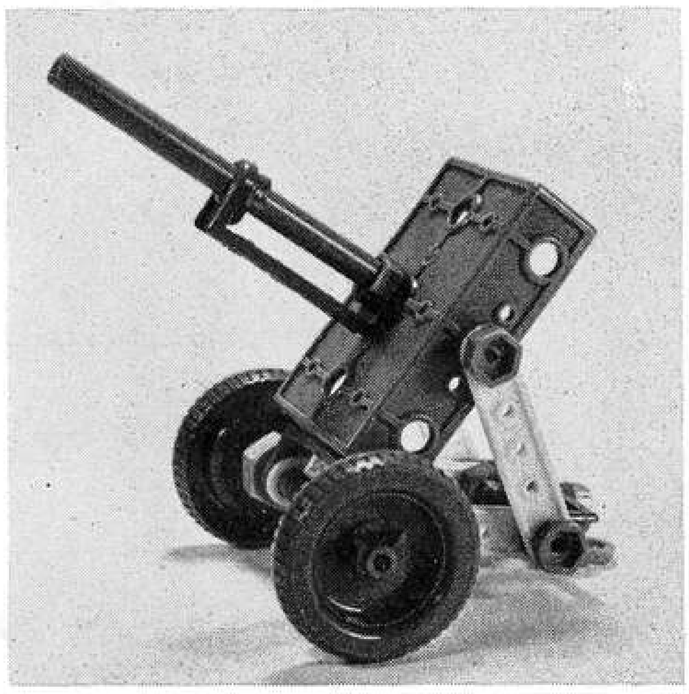
Although simple the model is amazingly realistic for the number of parts it uses and especially considering the age of the designer. I think you will agree that Matthew is to be congratulated. When he is old enough for standard metal Meccano, I am sure he will soon become a fully-fledged and competent modeller - as, indeed, will the designers of all these Plastic Meccano models.

STANDARD MECCANO TRAM

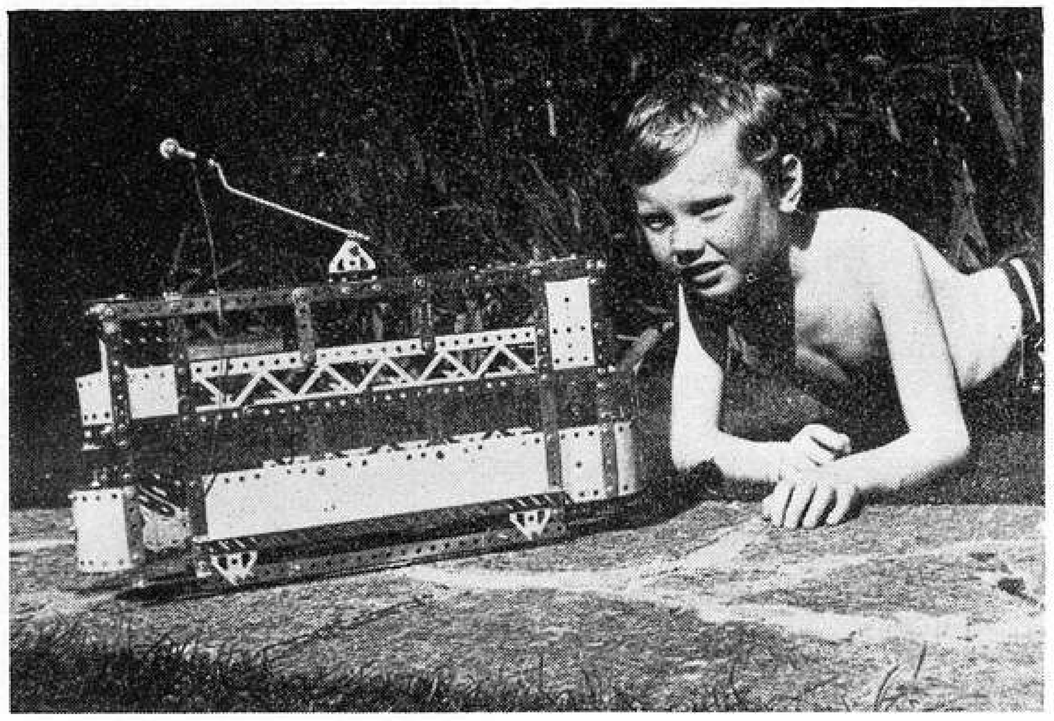
One young man who has already reached standard Meccano age is young Nigel Ard, of Whitley Bay, Northumberland, who will be nine years old this August. Nigel has sent me the accompanying photograph which shows him pictured with a model Tram he built from his No. 7 Set last year. The model is very well-proportioned and certainly gives a fine impression of an old "Bone-shaker".

Nigel admits that dad gave him a hand to build the model, but I am sure that Nigel himself put in most of the hard work. Considering his age, he shows excellent promise as a budding young modeller and I take this opportunity of wishing him and all young enthusiasts every success with their future Meccano activities.

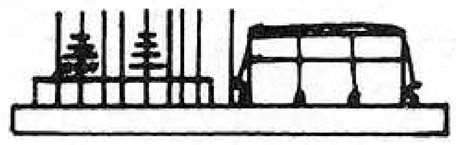


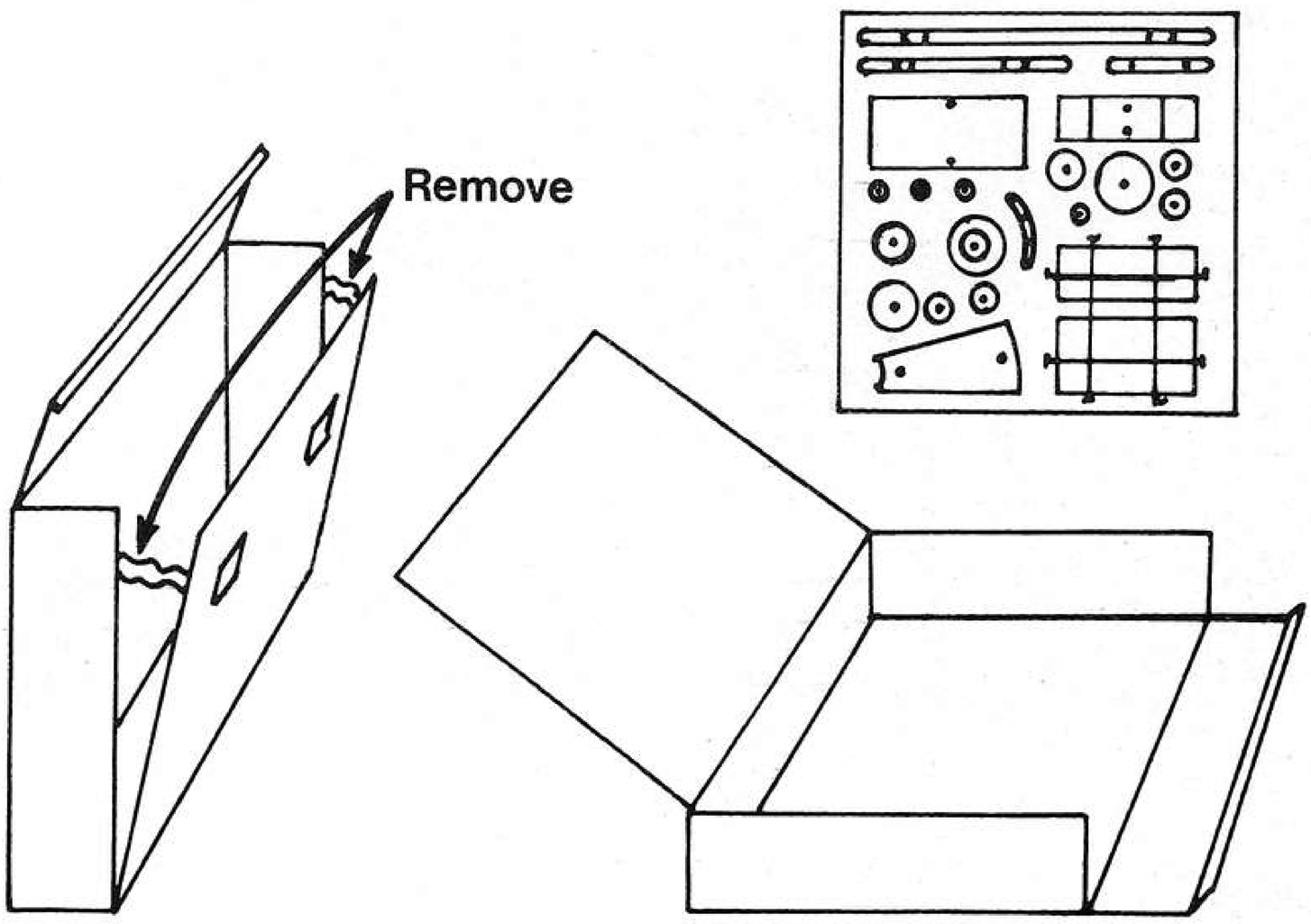


Above left, a well-proportioned Galleon designed out of Plastic Meccano by 8-year-old Gavin Bultitude of Chalfont St. Peter, Bucks. Left a Plastic Meccano Field Gun by 6-year-old Matthew Terry of Colchester, Essex. Right, Nigel Ard (aged 9), of Whitley Bay Northumberland pictured with his Standard Meccano Tram, built from a No. 7 Set.



HAVE PARTS-WILL TRAVEL





A PORTABLE PARTS BOX

by J.A.SMAILES

DESCRIBED HERE is a container which has the advantage of being able to hold a large amount of Meccano in a small space. The original, constructed by the writer, will hold his complete stock which comprises a basic No. 8 Set, plus a Mechanism Set and the parts contained in a Meccano Clock Kit No. 2.

The basic container is an L.P. record carrying case, easily obtainable and quite inexpensive. You might even find one of these about at home, or be able to persuade someone to give you one.

Begin by removing the two side straps that prevent the front from opening completely. This is the only modification that has to be done to the case itself, meaning that it can, at a later date, be returned to its original use.

Next make the mounting board. This can be cut from any sort of wood; plywood is ideal, and should be about 3/8" thick. The measurements for this are those which suit the inside dimensions of your record case and will be about 12½" square. In sawing the wood try to get it as square as possible.

The next job is to mark the positions for the holes that will be drilled later. This is done by placing your Meccano parts in the positions that you require and marking the positions of two of the holes with a pencil. Any two holes will do, but, with a little care, it will be seen that several different sizes of Strip, Girder or Plate can be held on the same fixing points, the largest on the bottom and the smallest on the top. In the same way Pulleys and Gears are arranged in a cone-like fashion. Plan for all your Strips, Girders and Plates first, filling in the spaces with the smaller Gears, etc. This will ensure that the maximum number of parts go into the minimum space.

Having marked the positions for the holes, these should now be drilled and it is important that this is done accurately so that the parts will not be too tight a fit. The actual fixings are 3" wire nails obtainable at almost any hardware shop for a few pence. The writer used about 32 nails for his container. *Do not try to drive through the nails without first drilling, as this may well split the wood.* Drill the holes just large enough to allow the nails to be a tight fit.

Don't forget to leave space to hold your boxes containing Nuts and Bolts and small pieces. Place the boxes on the board, again stacking upwards as high as your record box will allow, and mark approximate positions as shown on the drawing. In the positions marked, fix some curtain wire hooks. The boxes are held in place between the hooks and secured by large rubber bands.

You are now ready to mount your Meccano parts on the board. When this is completed, it only remains to hold them in place on the nails with either Collars or Spring Clips, both items obtainable as Meccano spares. Stacking upwards in this way will allow all your Meccano to be kept in a small space and also to be kept secure so that possible damage due to parts moving about in a conventional box will not occur.

In conclusion, the only limitation to this system is the size of the record container. Providing that you do not own a No. 9 set or have Girders longer than 12½", this idea should provide an inexpensive form of container which will help to keep your valuable Meccano in mint condition.

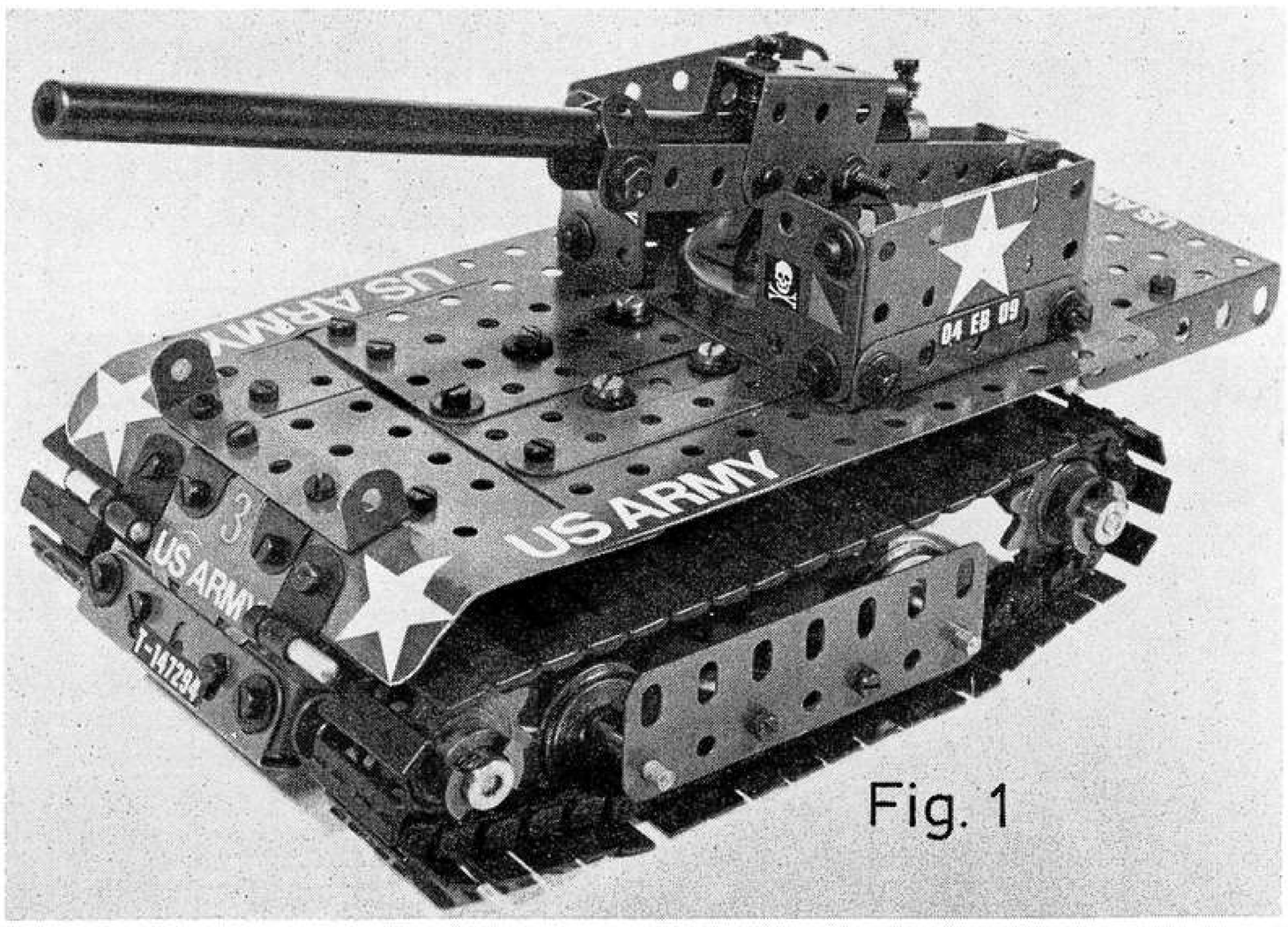


Fig. 1

Take:
one Army
Multikit,
one Motor
with Gearbox,
just a few
extra parts
and build this...

SELF-PROPELLED GUN

BASED ON A famous piece of Second World War American artillery this Meccano Model was a prize-winner for Roger Lloyd at the inaugural meeting of the Society of Advanced Meccano Constructors. Because of the realism of the parts included in the Army Multikit, Roger felt that they could be made up into a mobile and motorised form if the problem of mounting the Meccano Motor-with-Gearbox could be solved. He hit on the ingenious solution of raising the chassis by fitting extended running gear which not only gave the ground clearance required, but added both to the realism and to the running performance of the plastic crawler tracks.

Struck by the novelty of Roger's model, BERT LOVE, the Society's Secretary, sent us the photographs and write-up for this article.

Fig. 1 showing the general view of the model, immediately identifies it with the prototype U.S.A. Self-propelled Gun mounted on a Sherman or Grant type chassis. This model drives smoothly in either direction, climbs a 30° slope with ease and has a swivelling gun complete with cocking mechanism and spring-loaded firing mechanism. Construction starts with the chassis main plate which is a 5½" x 2½" Flanged Plate, its flanges being extended downwards by two. 5½" x 1½" Flexible Plates 1 as seen in Fig. 2. A pair of 7½" Strips 2 extend these side plates at their bottom edges by two holes at either end and are mounted inboard.

At the rear end of the chassis, a pair of Flat Trunnions 3, mounted vertically, add support to the Flexible Plates and also provide extra bearing surface for the rear axle. At the forward end of the chassis, the Flat Trunnions (4) are set at an angle, the apex hole of the Trunnion being bolted through the flange of the Flanged Plate, one hole back from its end and the Trunnion is then swung forward until the last of its other three holes matches up with the third hole back in the 7½" Strip and the end hole of the 5½" Flexible Plate. As far as the forward Trunnions are concerned, a similar construction is used on the Heavy Tank illustrated on page 35 of the Army Multikit

Above: a general view of the completed Self-propelled Gun designed by Roger Lloyd and described here by Bert Love. Powered by a Meccano Motor-with-Gearbox it features working crawler tracks and firing gun and is built from an Army Multikit, plus a few extra standard parts. Right: A detailed underside view, showing additional track running gear required. Motor should be set in the 16:1 ratio for climbing activities.

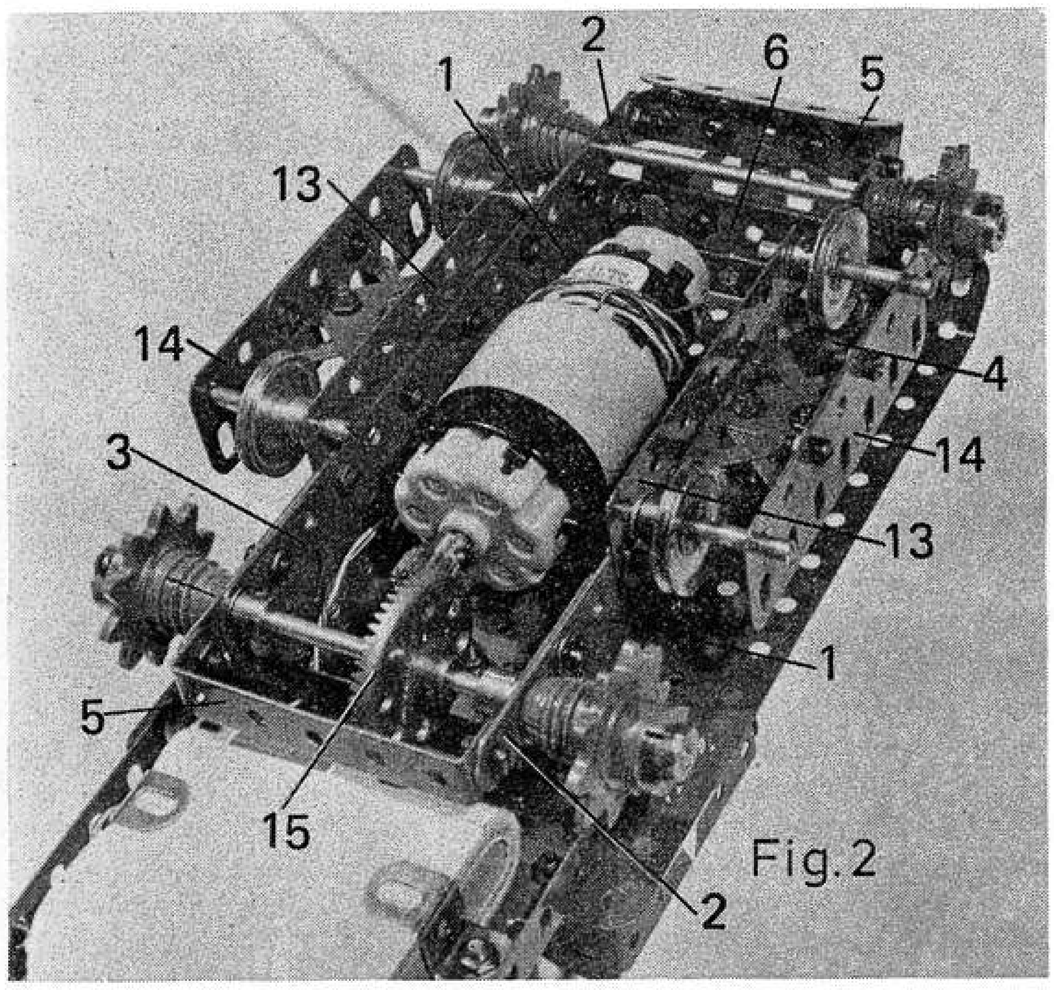


Fig. 2

Manual. The unorthodox mounting of these latter Flat Trunnions gives a slope-front contour to the chassis plates at the front.

Final strengthening of the chassis is provided by one 2½" Double Angle Strip 5 at each end of the 7½" Strips and one more (6) bolted to the forward end holes of the front Flat Trunnions. These two forward Double Angle Strips set the angle of the frontal armour plate which is continued by bolting a further Flat Trunnion by its two upper and outer holes to the top Double Angle Strip, but a pair of obtuse Angle Brackets 7 are bolted on with the Trunnion, at the same time. The lower apex end of the Trunnion is sandwiched against the bottom Double Angle Strip by overlaying it with a 2½" Angle Girder 8.

At this stage, the upper deck armour plate should be fitted. This consists of two 5½" x 2½" Flat Plates 9, overlapped one hole along their length and bolted to the chassis three holes back from the front edge of the Flanged Plate. Lapping the Flat Plates gives an uneven deck, so two 5½" Strips 10 are used to level things up. One of them goes *under* the right-hand Flat Plate along the edge of the Flanged Plate underneath, while the second Strip lies on top of the left-hand Flat Plate, in its centre.

Continuing by building the gun platform, a 3½" x 2½" Flanged Plate 11 is bolted across the deck at the rear, its position and the siting of the Bolts being clear from Fig. 3. Placing the Bolts like this ensures that the gun platform is fixed through the packing 5½" Strips already mentioned and will not distort when the Bolts are tightened.

Now the gun swivel can be fitted and this is made from two Trunnions bolted to a Wheel Flange 12 and again, to keep things level, the Trunnions are mounted with their flanges outward. To centralise the Wheel Flange, the remaining Flat Trunnion in the Multikit is trapped underneath it by the Bolts holding the upper Trunnions. A ¾" Bolt is fitted with a Washer, pushed through the centre of the Wheel Flange and then fitted with a Collar as a stand-off bush for the gun swivel. This prevents the rim of the Wheel Flange from scoring the paintwork. A further Washer is added when the Bolt is pushed through the centre of the gun platform and, finally, two lock-nuts are fitted over the Washer to secure the pivot from below.

Before proceeding any further with the gun, the motor and running gear should be fitted. A Meccano Motor-with-Gearbox is mounted, as shown in Fig. 2, with four 3/8" Bolts and Washers in the position indicated in Fig. 1, where the Bolts can be seen forming a square just in front of the gun shield. It is advisable to use forceps or tweezers to get the Nuts fitted once the Bolts are in place, as things are a little cramped below chassis.

We now come to the 'extras' required for the track running gear and the first of these is a pair of 3½" Flat Girders 13 bolted outboard of the 7½" chassis Strips as shown in Fig. 2. Outriggers, made of reversed pairs of Trunnions, hold the other pair of Flat Girders 14 found in the Multikit and these are lined up with the inboard Flat Girders. Two 5½" Rods are provided in the Army Multikit and these should be used to line up the four Flat Girders by passing the long Rods right through from one side of the model to the other, holding them in place temporarily with Spring Clips, or rubber bands. When satisfied that all holes are properly aligned and that the model sits level on its Flat Girders when placed on a table top, all Bolts are tightened securely.

Two sets of crawler track, of 42 links each, are made up and set to one side. Both 5½" (plain) Rods are fitted through the chassis as shown in Fig. 2, making sure that the rear bearings are free by drifting the rear Trunnions 4, bolted against the 7½" Strips, with an Axle Rod. No binding of any kind should be allowed. The

over →

Right: in this view the left-hand gun shield has been removed to show the details of the swivel mounting and firing mechanism. Below: a general rear view of the completed model showing the battery storage platform bolted to the rear deck armour. The long battery lug makes contact with the chassis via a Reversed Angle Bracket.

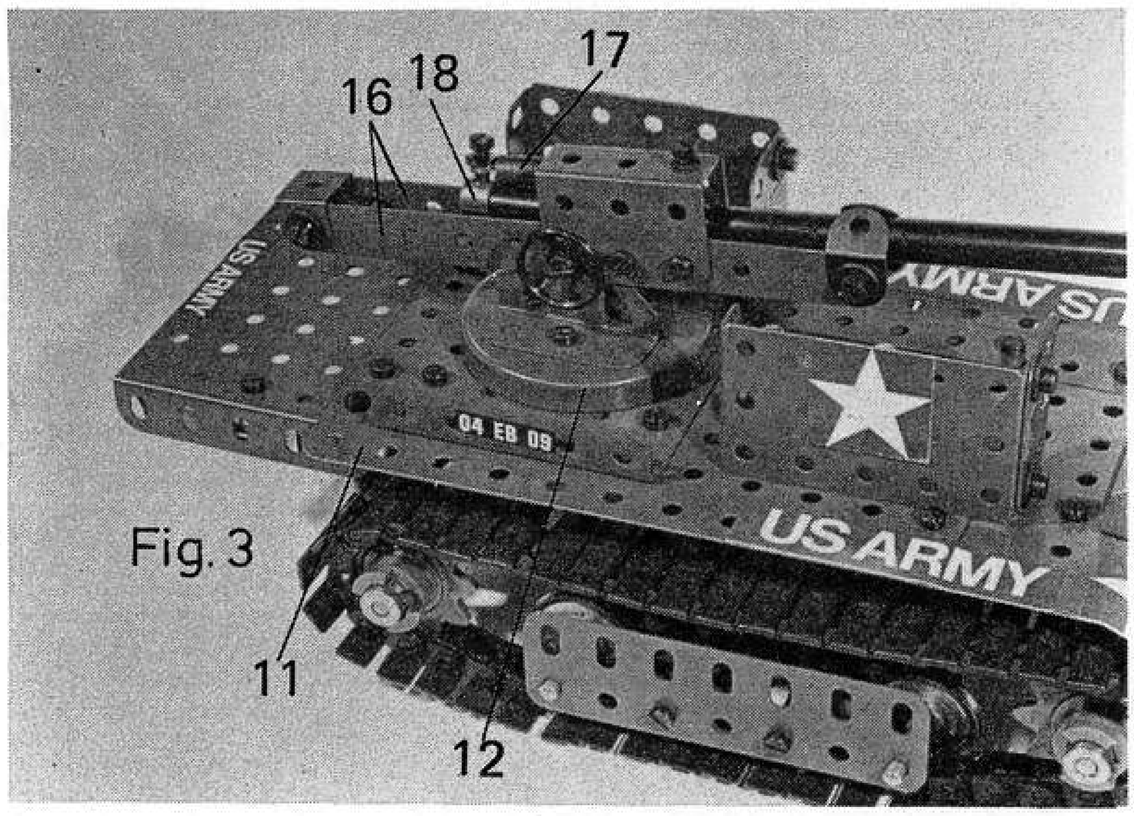


Fig. 3

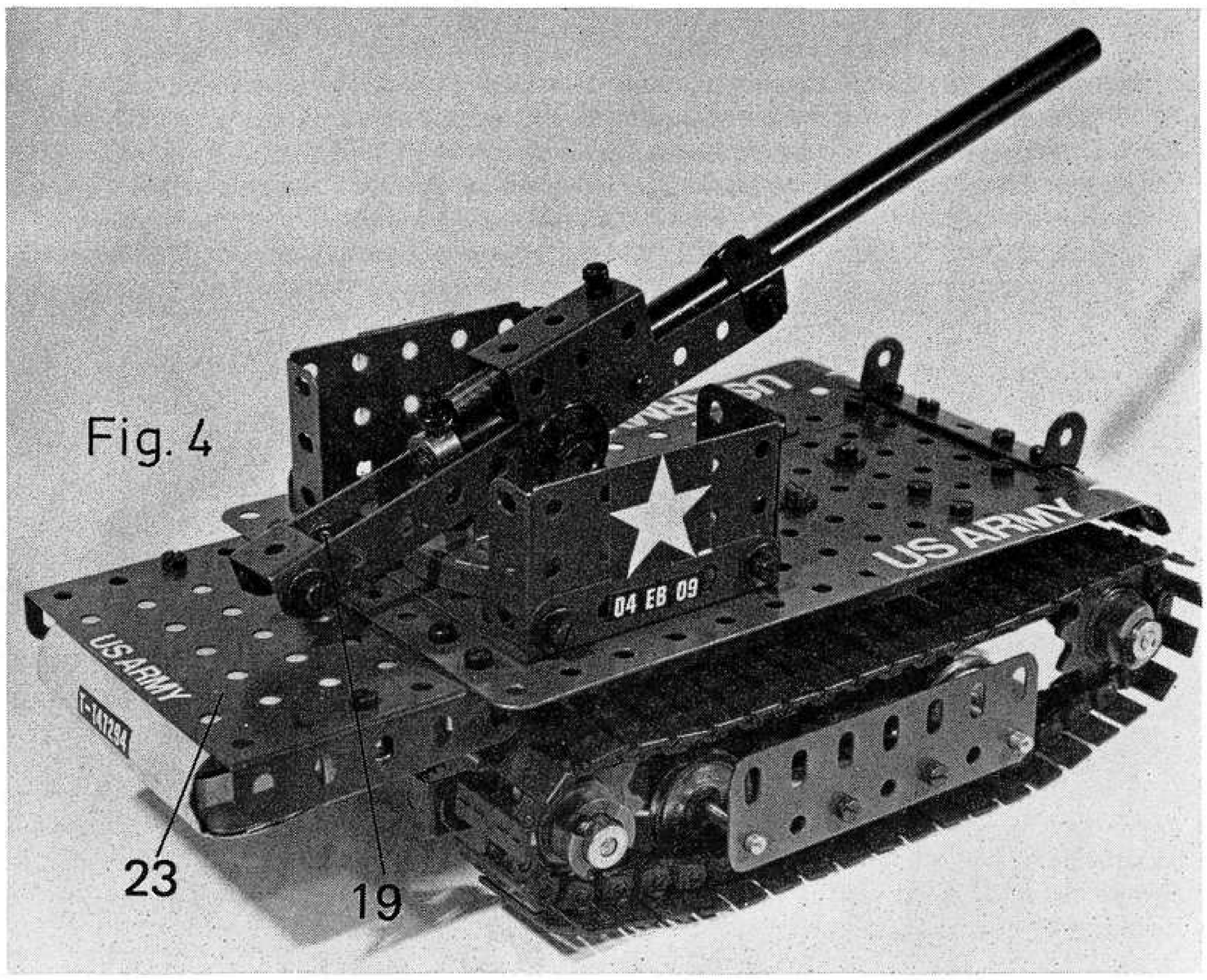
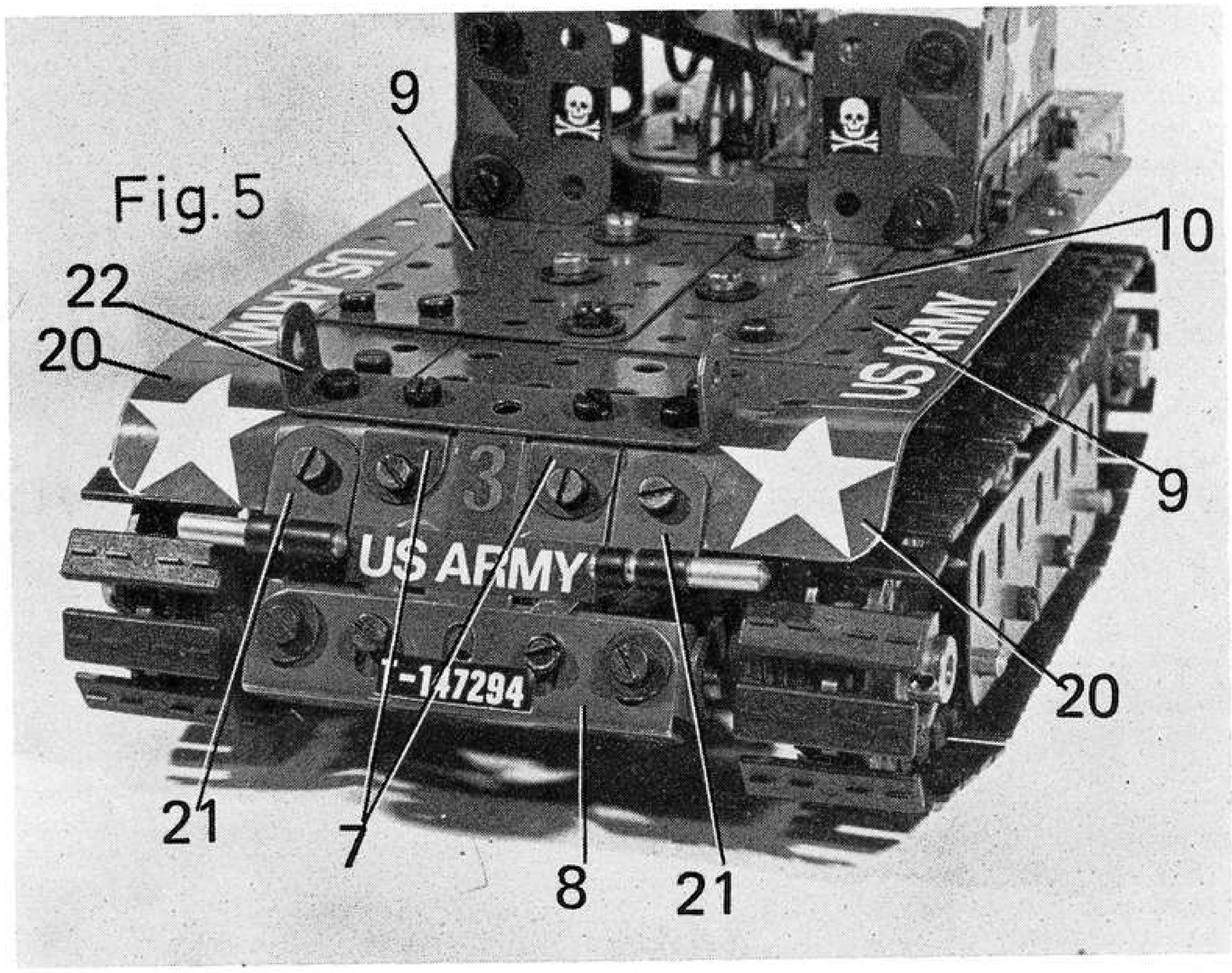


Fig. 4



A close-up frontal view of the Self-propelled Gun showing details of the front armour plating and fittings, as well as suitable locations for the adhesive stickers supplied with the Army Multikit. The stickers add a final touch of realism to a first-class model.

short sleeve pieces are fitted inside each Sprocket Wheel which are then placed in position. The front Axle must also run freely and the two Sprockets which it carries are held in place by Collars fitted with standard Grub Screws. The rear Axle carries two Washers, two Collars and a large Contrate Wheel 15 as shown, the Collars acting as thrust bearings to hold the Contrate in clean mesh with a 19t Pinion on the motor shaft. The motor drive should be tested at this stage, before fitting the tracks, to make sure that all runs sweetly with no binding or tight gear mesh. The smallest drop of fine oil can be applied to the rear axle bearings.

The rear Sprockets are fitted with Collars, each of which has two long Grub Screws to give a firm drive against the cut-away sections of the Sprockets. The crawler tracks are added, then the final parts of the running gear, illustrated in Fig. 2, are mounted in the Flat Girders. Four 1" Pulleys with boss are required and four 1½" Axle Rods. Apart from one Washer on each Rod, no further parts are needed here, as the track keeps the short Rods in position by bearing sideways against the Pulleys.

Referring back to Fig. 3. the gun can be completed and fitted. Two 5½" Strips 16 are fixed inside a Channel Bearing, as shown, with two standard Bolts on each side. The rear ends of the Strips are joined by a ½" Double Bracket and the front ends by a ¾" Bolt, fitted with Washers and the last pair of Obtuse Angle Brackets to trap the forward end of the gun barrel. A ½" Bolt is lock-nutted to the top front of the Channel Bearing, this being used to trap the forward loop of the Tension Spring 17 and to apply pressure to the gun barrel. The ¾" Bolt holding the two Obtuse Angle Brackets must be fitted with three Nuts to lock the Brackets tightly in place against the barrel. A Collar 18 is secured on a 2½" Rod by a 3/8" Bolt from below to make a firing plunger. This is inserted into the barrel and, fixed to it by a 3/8" Bolt, is the rear end of the Tension Spring. Another 3/8" Bolt 19 with two lock-nuts is used to form a cocking pin and this is fixed to right-hand 5½" Strip 16, just in front of the Double Bracket. This can just be seen in Figs. 3 and 4. The lock-nuts are adjusted so that the 3/8" Bolt will hold the lower Bolt under the Collar when the gun is cocked, but has sufficient clearance to release the plunger when the upper Bolt on the Collar is flicked to the left.

The gun is mounted on its swivel by passing a 1.1/8" Bolt through the Steering Wheel shown, and then through the rear lower holes of the Channel Bearing straddling the top holes of the Trunnions, securing all in place with a Washer and lock-nuts on the far side. The gun shield is completed as shown.

Two 2½" x 1½" Flexible Plates 20 form mud shields at the front of the model and these are bolted under the leading edges of the deck armour as shown in the various illustrations. A clean bend is set into the forward section of these Flexible Plates, as shown, to follow the contours of the chassis Trunnions below, and the inside slotted hole of each Plate is fixed to Double Angle Strip 6 by Bolts carrying Right-angled Rod and Strip Connectors 21. This should be clear from Fig. 5. Each Rod and Strip Connector is fitted with a 1" Rod to provide towing points. The remaining Double Angle Strip 22 is now bolted to the front Obtuse Angle Brackets and then to the second holes back in the short Flexible Plates. The lugs thus provided could then be extended by Narrow Strips to form a travelling gun support, if required.

Readers may be surprised to see that a pocket flash lamp battery of only 4½ volts is provided. This is fitted by Reversed Angle Brackets (extra to the Multikit) to a 3½" x 2½" Flanged Plate 23 bolted to the stern of the gun chassis. One wire to the motor is trapped by one of these Brackets, making a bare chassis connection against the long battery lug. The short lug is bent clear of the chassis and the second wire has its bare and clenched by nipping a bend in this lug with a pair of pliers.

It only remains for the builder to decorate his model with the first class adhesive transfers included in the Army Multikit and the final transformation makes an astonishing touch to the realism of the model (not to mention conveniently hiding some slotted holes in the armour!) Set the Motor on 16:1 ratio, and away she goes!

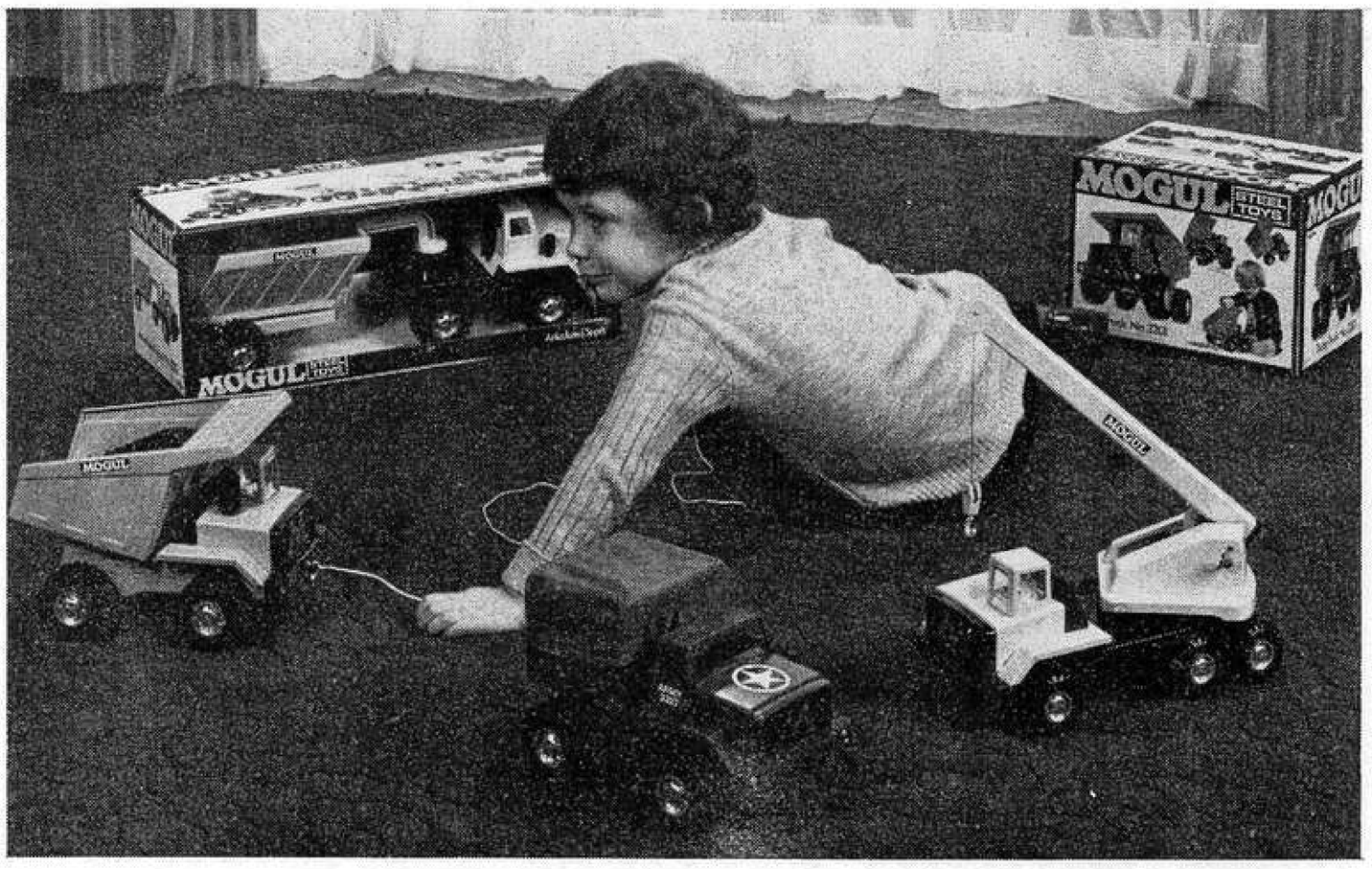
As the Meccano Army Multikit is a complete and self-contained outfit, a fully itemised parts list for the Self-propelled Gun is not required; anybody with an outfit automatically has all the Multikit parts needed to build the model. However, a few extra standard Meccano parts are required and we list these below for the benefit of those readers wishing to complete this superb construction.

Extra parts required for running gear and battery support.

4-18a	4-22	6-38	2-103d
4-111a	2-111c	2-124	1-26
1-28	1 Meccano Motor-with-Gearbox.		

MOGUL IS HERE!

the Editor spotlights a new Meccano product



EVEN AS you read this, Meccano Limited is launching onto the market a brand new product range known as MOGUL Steel Toys – the first big steel toys ever made by the Company (except for a single M.G. type car produced in the 1930's more as a model than a toy).

Considering Meccano has been made out of steel for something like seventy years, this last statement might come as a surprise to many readers. It is therefore important to explain that the statement is made within the context of toy industry terminology which recognises steel toys as a specific class of merchandise; namely complete, ready-made model vehicles, etc. produced from pressed steel. (Tonka Toys are typical examples). While it has been possible to build up Meccano models that look like steel toys – particularly since the introduction of Multikit – we have never before produced any ready-made toys of this type.

SIX MODELS

The initial MOGUL range consists of six tough and exciting models: a Tractor Digger, an Articulated Tipper, a Dump Truck, a Mobile Crane, a Tractor and Trailer and an Army Truck. Sizes vary from model to model, of course, but the smallest, the Army Truck, is no less than 10¼ inches long while the largest, the Articulated Tipper has a combined overall length of more than 20 inches.

It is believed in Binns Road that MOGUL are the finest big steel toys of the type on the market and, in my opinion, there are several good reasons for thinking this. To begin with, the toys were designed, not by toy men, but by professional industrial and automotive designers: Ogle Design who were responsible for such well-known vehicles as the Reliant Scimitar and Bond Bug. Ogle have tremendous industrial design experience and, not being previously connected with Meccano, they were able to look at the design possibilities through 'fresh' eyes. The results of their efforts are six highly appealing toys which, although not based on specific real-life originals, are very representative of the type of vehicle portrayed.

Another very significant point lies in the materials used to make the toys. Being classified as steel toys, the chief material used is of course steel – of a heavier gauge than that used in most comparable toys – but significant use has also been made of the die-cast metal used for Dinky Toys. There are features and shapes on any vehicle which cannot be reproduced with strength and realism in pressed steel on a model. Such parts, however, can often be realistically die-cast and this is what has been done. Die-cast metal parts feature wherever complex contours and fine detail are required and the resulting unique blend of manufacturing techniques produces some of the strongest, safest and most realistic big toys anywhere in the world.

For another, smaller, but important point, it is necessary to consider the playing habits of young children (MOGUL toys are of course aimed at young children). The smaller child, given a wheeled toy to play with, likes to tie a piece of string to the front and tow it around behind him. To make things easier for him, the MOGUL toys have been fitted with a special towing hook at the front to give him something to tie the string to. And a tow-hook at the back of the toys further increases play possibilities.

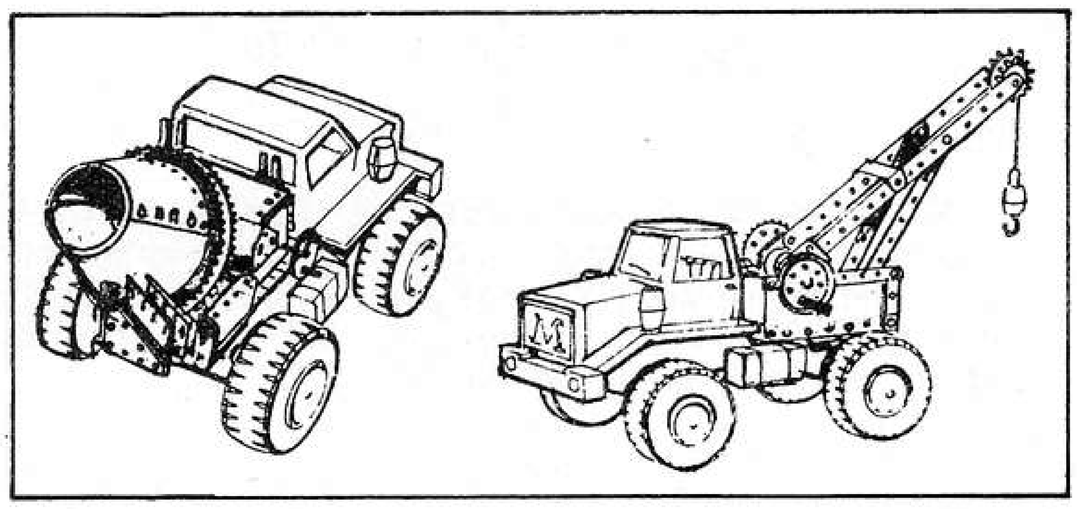
THE MECCANO CONNECTION

To M.M.Q. readers, the MOGUL story so far revealed will be of interest only in the general sense that most Meccano modellers like to know what's happening at Binns Road on the whole company front. MOGUL, however, does have a very much more direct Meccano interest: three of the models – the Mobile Crane, Army Truck and Articulated Tipper – have Meccano-spaced holes punched in their chassis and are designed so that their existing superstructures can be removed. Thus, the model can be converted, as desired, by simply building on a new Meccano superstructure.

Actually, more thought has gone into this Meccano add-on feature of MOGUL than might at first be imagined.

Continued on page 73

Sketches showing just two examples of Meccano extensions to Mogul toys: Cement Mixer and Mobile Crane.



WHAT'S IN A NAME?

MECCANO MECCANO

MECCANO MECCANO MECCANO

Mike Nicholls provides the answer in this MECCANO MISCELLANY

Many people who don't use Meccano (it takes all sorts to make a world!) have asked me what the word "Meccano" means. This is a tricky question, because, to an enthusiast, the word has a wealth of meaning, while to the uninitiated, it probably just means pieces of metal with holes in them. I was even asked once if Meccano was Italian because the name ended with "O"!

"Meccano" is of course a trade name – the name of a product. It is as synonymous with metal construction outfits as "Hoover" is with vacuum cleaners and "Thermos" with vacuum flasks. "Meccano" has become such a 'household word' that it is found in all good English Dictionaries, a tribute paid to VERY few other trade names.

On the 9th of October, 1901, Frank Hornby took out a patent on an "Adaptable Mechanical Toy" that he had invented. He called his invention "Mechanics Made Easy" and from this 'toy' was to grow the world's most comprehensive construction system, later to be known as Meccano.

Speaking of the early days in his first factory, Hornby said: "It was during the time that I was in this factory that I decided to change the name of my outfits from "Mechanics Made Easy" to "Meccano". The latter was a handier and shorter name, and I thought it would enable boys to identify my goods more easily. Also I could register this name, so that no one else could come along at any future time with imitation goods and palm them off on the public as being the real thing. I registered "Meccano" in England on 14th September, 1907, and in Germany in July 1912. As a result, no one else can ever use the word "Meccano", and of course without this name (on the box) no parts are genuine."

Hornby does not say how the new name was chosen Was it because it means the same in any language?. It is certainly spelt the same in nearly all countries (two exceptions being Russia and China as shown here) and this was and is very important because Meccano has always enjoyed a world-wide following.

"You will have noticed", continues Hornby, "That in all our advertisements, leaflets, etc., the word "Meccano" is printed in a specially designed type face – the letter "C" is rather unusual in its formation, and the letter "O" slopes a little. This and other little peculiarities give the word a very artistic appearance, and this special design is our exclusive property."

Actually, the lettering style has altered very slightly over the years, as can be seen from the blocks reproduced at the top of this page.

As Frank Hornby said, the Meccano trade mark is the property of Meccano Ltd., and may not be reproduced by an outside body unless they have special permission from Meccano Ltd.

Meccano was a fortunate choice of name. It has stood the test of time; and in the end, the answer to the original question is:–

"Meccano means a great deal of enjoyment to a great many people."

MEKKAHO

Дѣти, будьте изобрѣтателями!

納 加 美

(MECCANO)

利專許特年一百九千一于係法新之氏弼洪
物貴寶可最之師程工年幼爲寶納加美

* * *

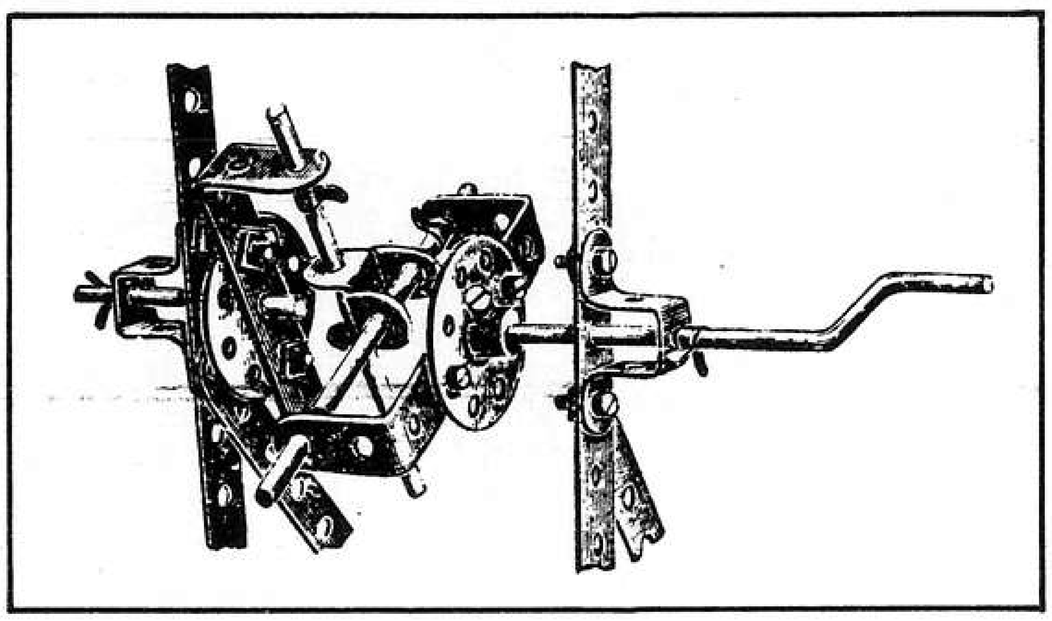
UNIVERSAL JOINT

The meccano Universal Coupling (Part No. 140) will be familiar to most readers of MMQ. It is one of those useful parts that are taken for granted, but the universal joint (U.J.) is an interesting unit, and its history and correct use deserve a few words.

In the sixteenth century, the physicist Jerome Cardan designed the first Universal Coupling. This explains why

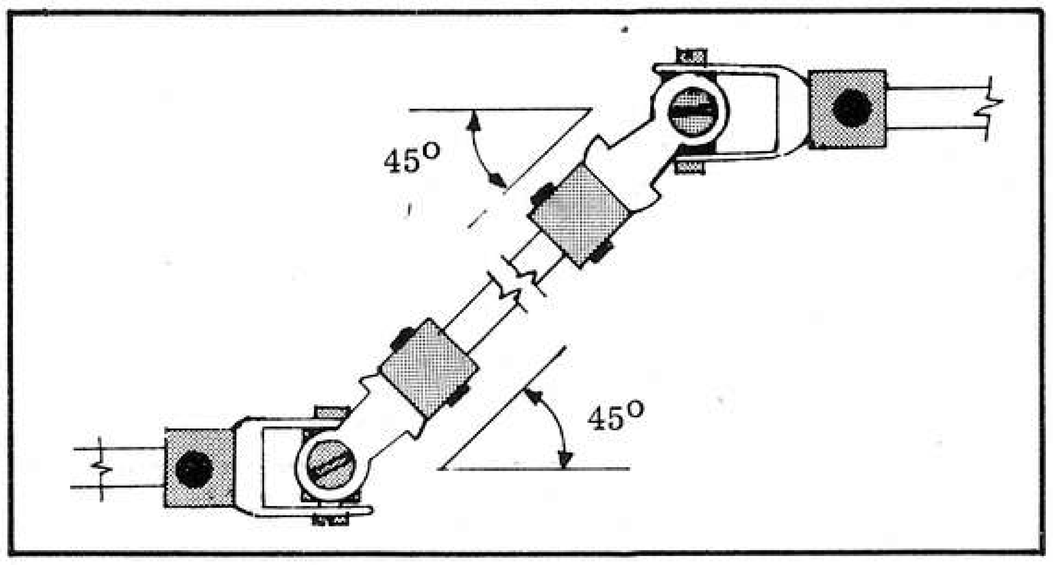
the term "Cardan Shaft" is often used in connection with the propeller shaft of a motor car. One hundred years after Cardan, Robert Hooke designed the first *practical* U.J. known as "Hooke's Joint", or "Hooke's Coupling".

The very early Meccano Manuals contained instructions for the building of a Hooke's Joint. This was however a clumsy affair compared with Part 140, and can be seen in the illustration below which is reproduced from one of those manuals.



A sketch of a Meccano-built Hooke's Joint, reproduced from an early Meccano Manual. A clumsy affair compared with Part No. 140.

The great disadvantage with a coupling of this type (this includes Part 140) is that there is a speed variation between the input and output shafts. This means that, if the shaft that drives the U.J. rotates at a constant speed, the shaft that is driven by the unit will *not* revolve at a constant speed, but will speed up then slow down regularly during rotation.



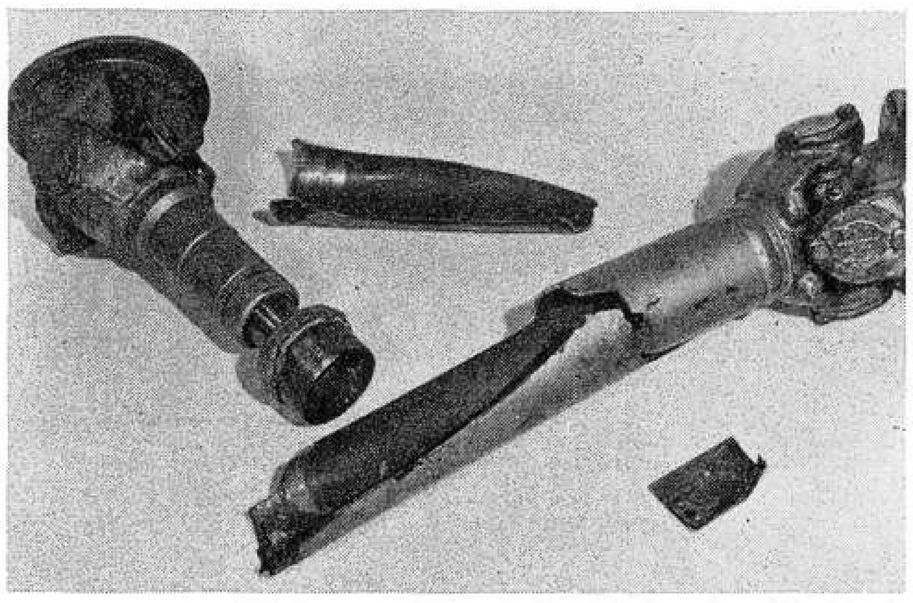
A sketch by the author showing the Universal Coupling arrangement which should be used to ensure that the driven shaft revolves at a constant speed. If a single Coupling is used, the speed of the driven shaft will vary.

This disadvantage may be overcome by using two U.J's coupled by an intermediate shaft. If this is done, however, two important rules must be observed:-

(a) The angle between the input shaft and the intermediate shaft must be equal to the angle between the intermediate shaft and the output shaft ; and

(b) The fork of the joints that are attached to the intermediate shaft must be in the same plane (see diagram above) and, incidentally, not as seen in Fig. 4 on Page 335 of MM for June, 1970.

This last point is of little consequence to Meccano modelling, but in real-life engineering, incorrectly coupled forks could cause a nasty bang (see photo.)!



The dangers of ignoring engineering rules! A shattered full-size U.J. arrangement caused by spot-welding a balance weight (bottom right) to the intermediate shaft.

AS WE WERE SAYING . . . .

MANY HAPPY hours can be spent browsing through old Meccano Magazines, especially those of the 1920's and 1930's. My favourite feature of that period is the section inviting readers to suggest additions and improvements to the parts range, where the reader's suggestion was described in the form of editorial comment.

Some suggestions recurred with amazing frequency: pleas for Rods with threaded ends; wider Fork Pieces; spring Washers; and recommended alterations to the Flanged Wheel. Many ideas that sounded bizarre at first glance contained the seeds of very useful part introductions as the following answers to suggestions, printed in old Magazines will indicate:–

February 1929

"GLASS WINDSCREEN – It would be inadvisable for us to introduce special glass windscreens for fitting to model cars, as they would be of too specialised a nature. Your suggestion, however, opens up the possibility of introducing sheets of transparent material such as glass or celluloid, punched round the edges with equidistant holes. Such plates would no doubt find several uses in the system."

Unfortunately, this reader had to wait 35 years for the introduction of the Transparent Flexible Plates! Other suggestions, however, were adopted more quickly than this:–

January 1928

"INTERNAL TOOTH GEAR – We were interested in your suggestion regarding the introduction of an internal-toothed gear wheel of such a size to permit its application to a Face Plate. This is a very interesting suggestion, and no doubt the part would prove invaluable in the construction of epicyclic gearing, etc. We are giving the matter very careful consideration, but we fear that we cannot enter into production with such a part for the present."

June 1929

"INTERNAL TOOTH GEAR – A circular rack strip having internal and external teeth would be of considerable use in the construction of an epicyclic gear box. We are making a special note of your idea and will go into the question of size, etc., as soon as possible."

The Gear Ring was introduced in 1933.

Also in June, 1929, a correspondent suggested that the Ship's Funnel should be painted to represent various shipping firms; he was rewarded later that year by a series of 26 differently painted Ship's Funnels!

Now you can really get weaving with this...

POWER LOOM

A Classic from the 'Fifties

A WORKING LOOM is among the most impressive of all Meccano models. Its synchronised precision movements are fascinating to watch; its business-like metallic chatter is music to the mechanically-tuned ear. But, most important of all, it gives the builder the ultimate satisfaction of seeing his creation actually weave real cloth.

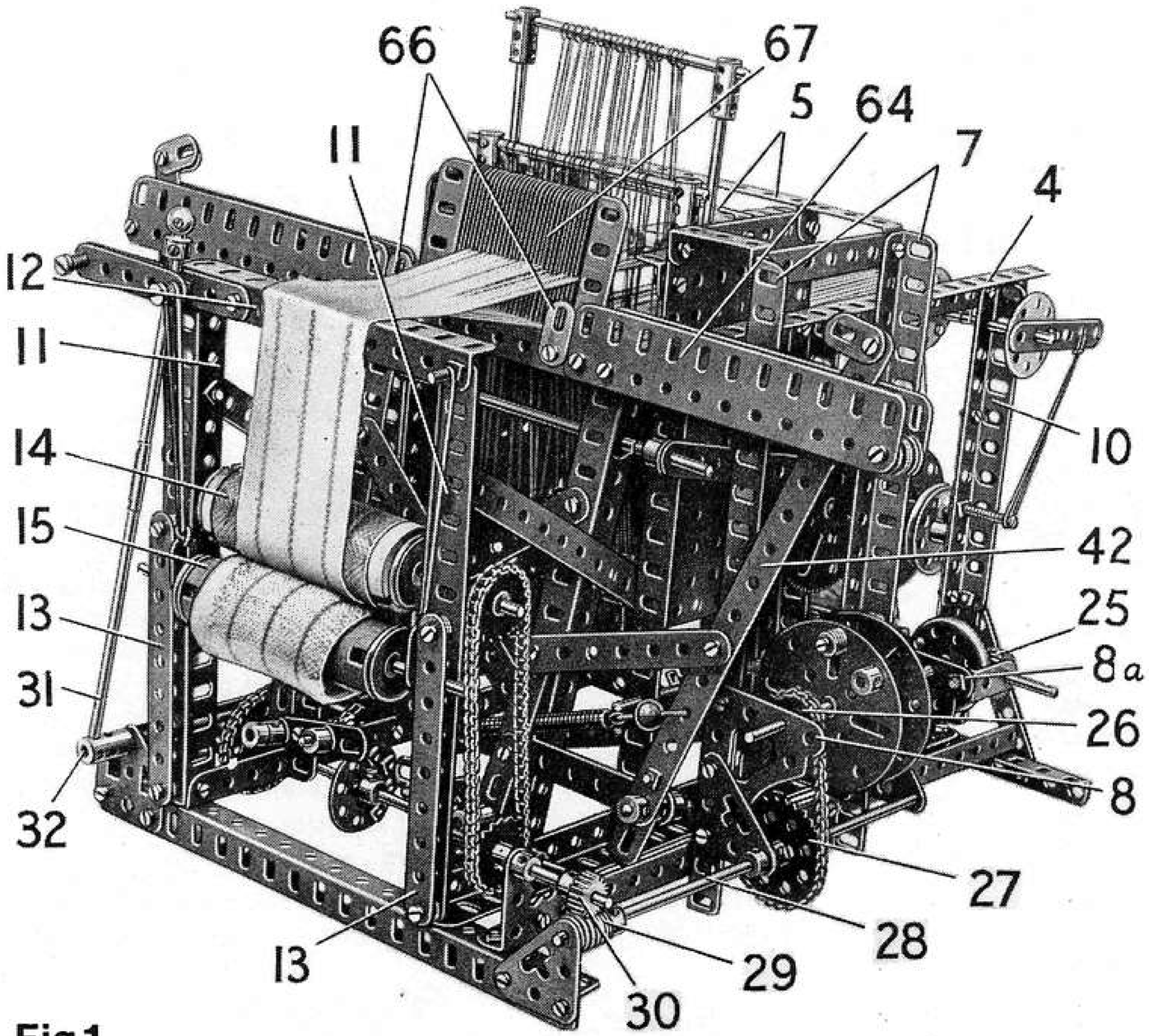


Fig 1

For this, the fourth article in our 'Past Masters' series, we have chosen a powered Loom which was originally featured in the December 1953 and January 1954 issues of the M.M. In fact, the accompanying illustrations are the actual original photographs, found in a dusty old file! The model has the advantage of being fully operational, with minimum complexity and, in our opinion, it qualifies as a Meccano Classic.

These are, however, two problems: (1) The Healds necessary for successful operation are now obsolete and no longer available, and (2) we don't have the space here to print the building instructions! Not to worry though; the first problem is solved with the special Meccano Heald-making Machine featured on Page 72 and, to solve the second problem, we have printed the building instructions separately. To obtain a copy, please send an S.A.E. (overseas, two International Reply Coupons) to Meccano Magazine Quarterly, Binns Road, Liverpool L13 1DA. (We regret we can supply only one free copy per subscriber; thereafter 10p for each additional copy). Get weaving!

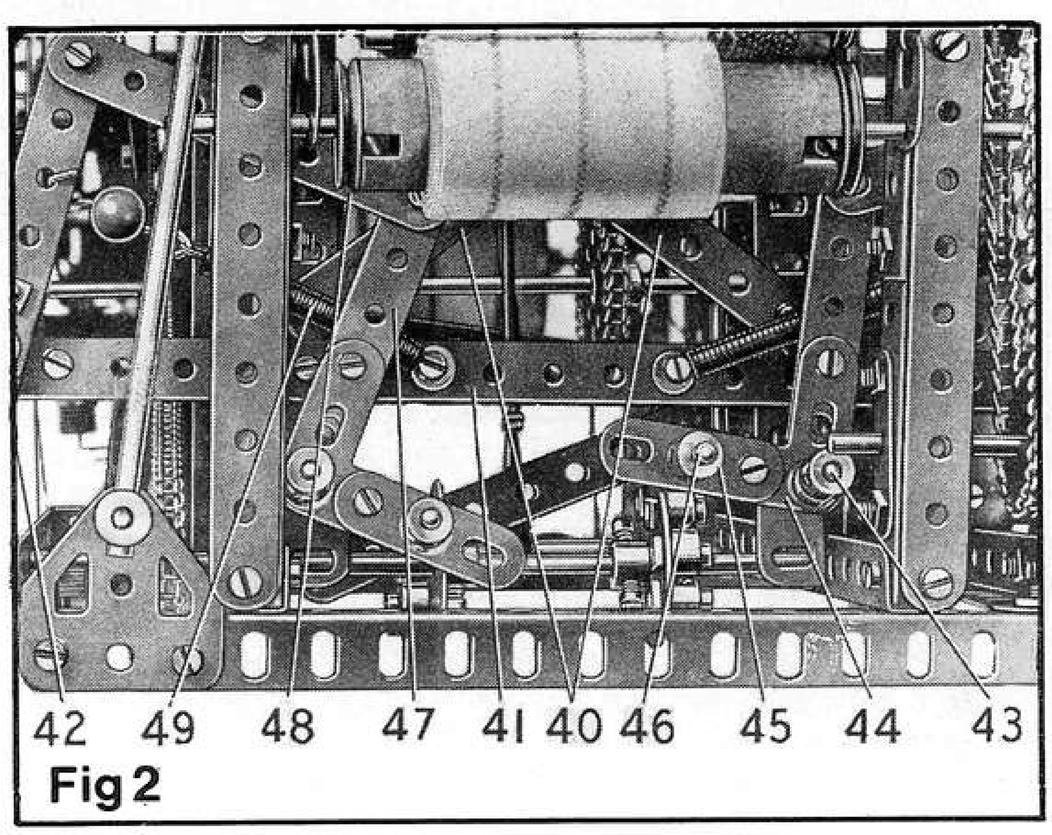


Fig 2

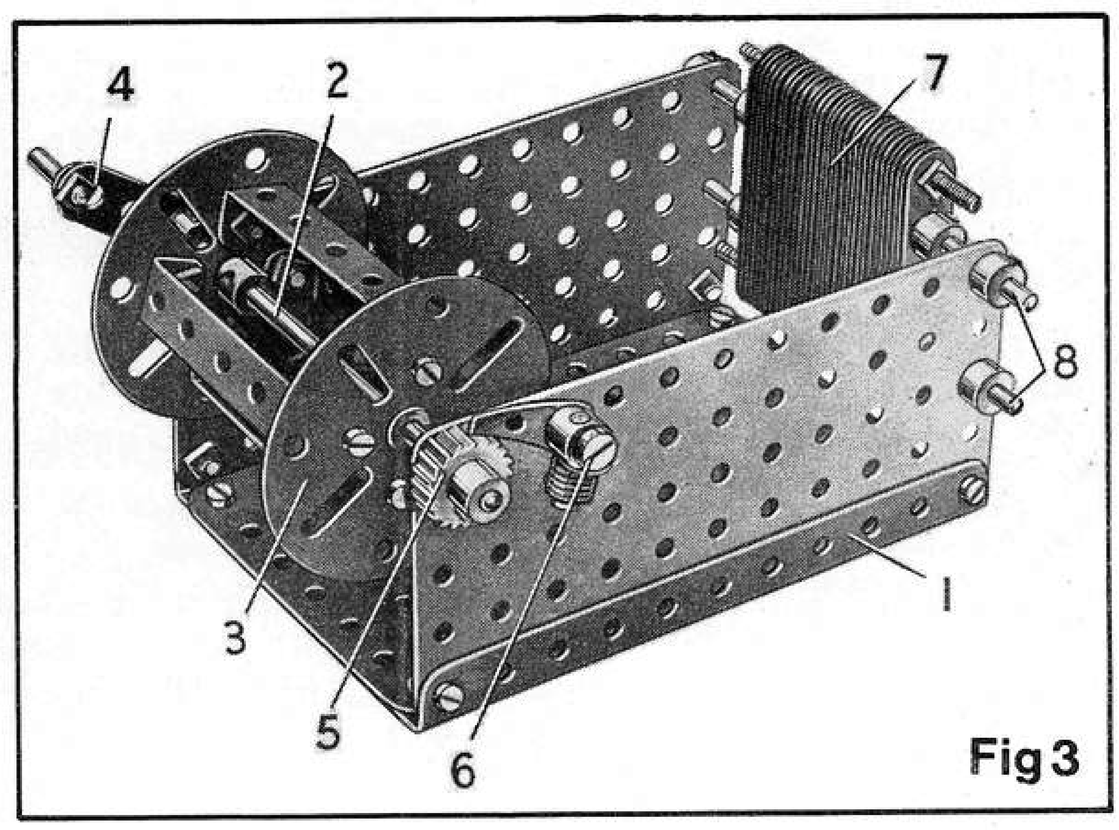


Fig 3

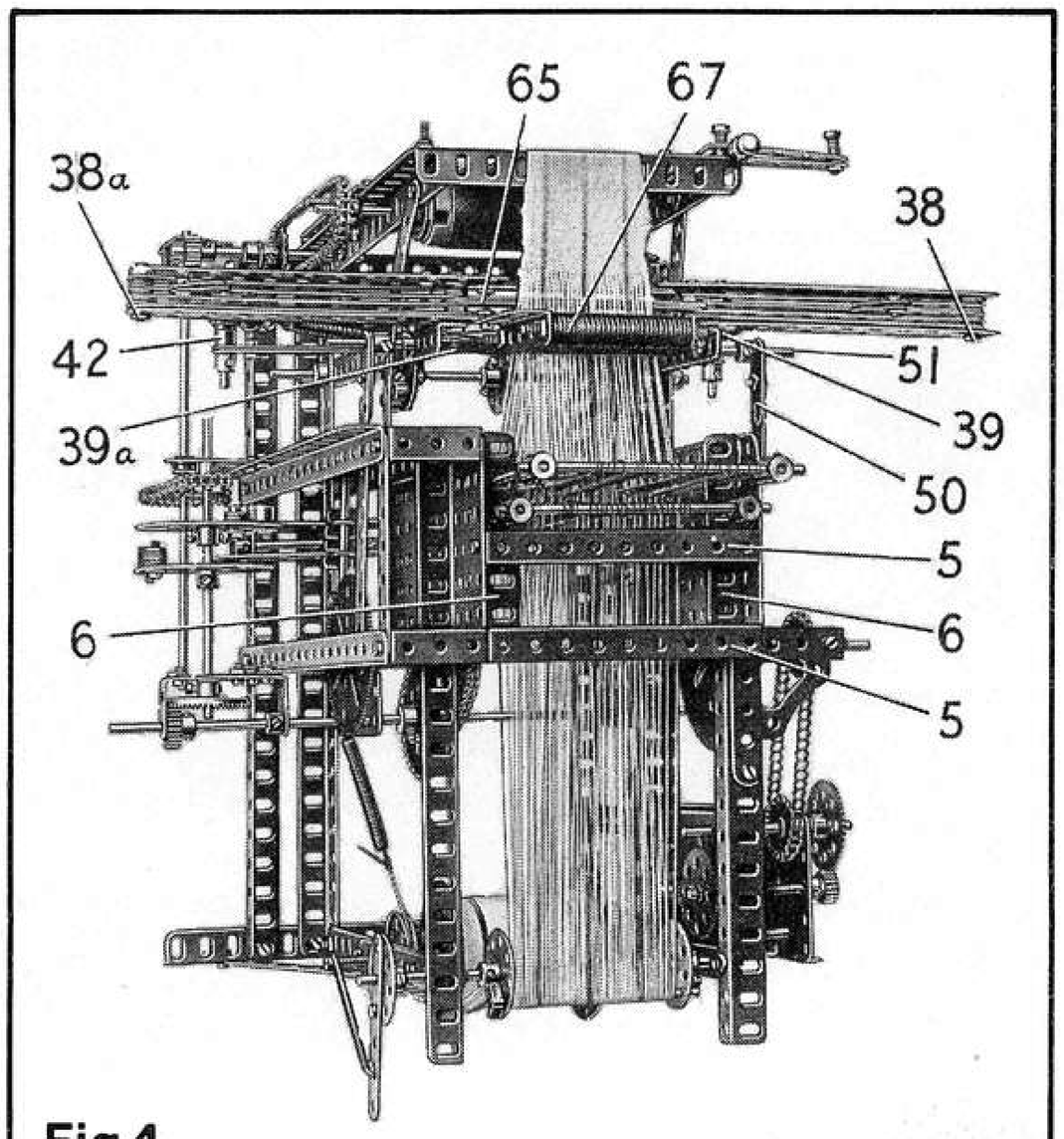


Fig 4

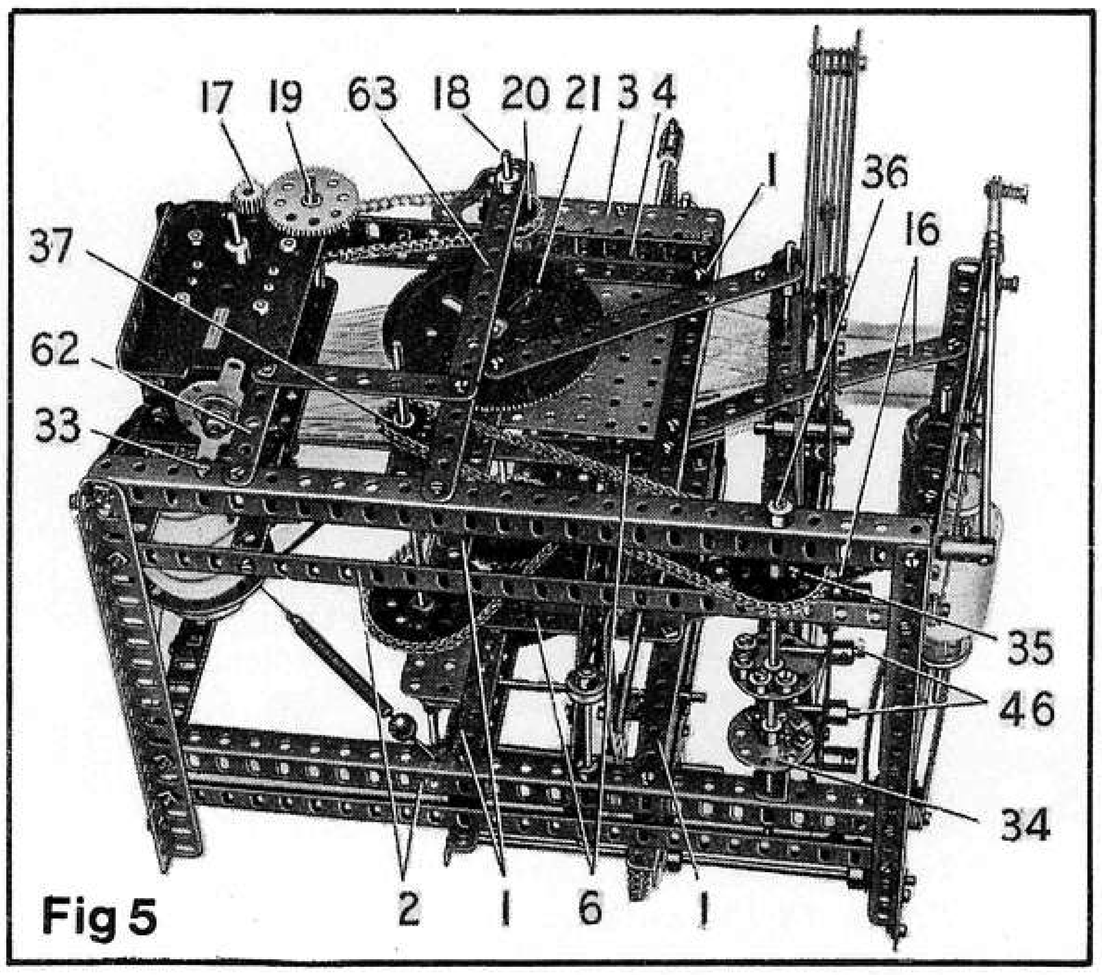


Fig 5

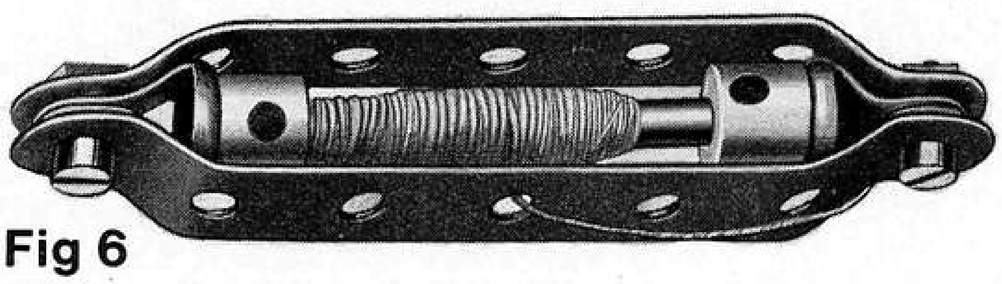


Fig 6

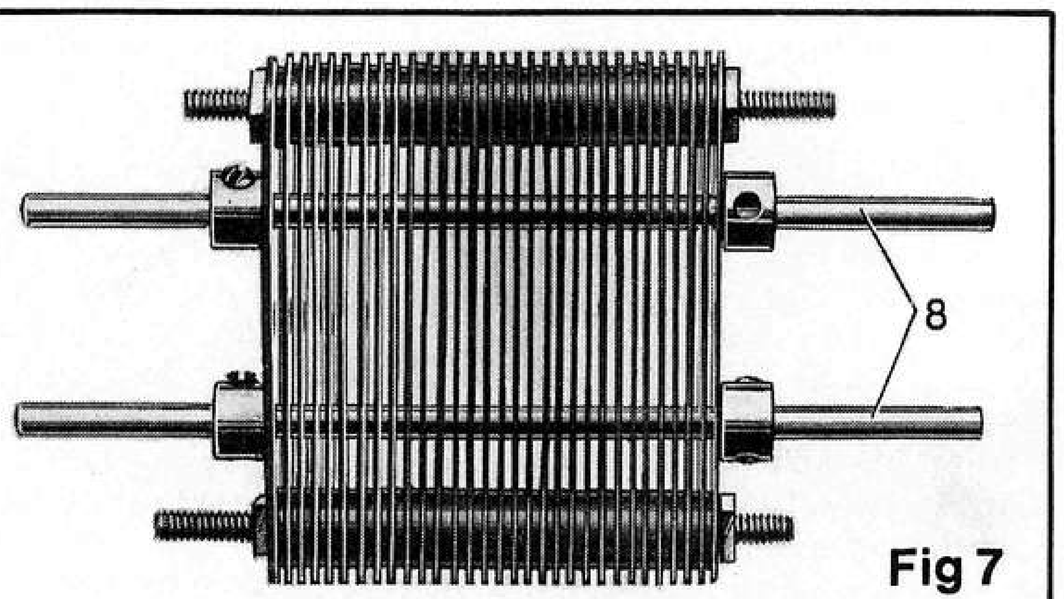


Fig 7

Past Masters
NUMBER FOUR

Fig. 1, a general view of the Meccano Loom showing its compact appearance.

Fig. 2, a close-up view of the cam mechanism that operates the picking sticks.

Fig. 3, the Beaming Frame – a useful accessory for preparing the beam of warp thread for insertion in the Loom.

Fig. 4, an overhead view of the model showing the arrangement of the shuttle race.

Fig. 5, an underside view showing details of the frame and the mounting for the E15R Electric Motor. (A now-obsolete E20R Motor was used in the original model).

Fig. 6, the Shuttle which is built up from standard Meccano parts.

Fig. 7, the Reed used in the Beaming Frame.

Fig. 8, a low-angle side view of the Loom showing the cams controlling movement of the heald frames. The healds, themselves, are now obsolete, but adequate substitutes may be made using the special machine featured overleaf.

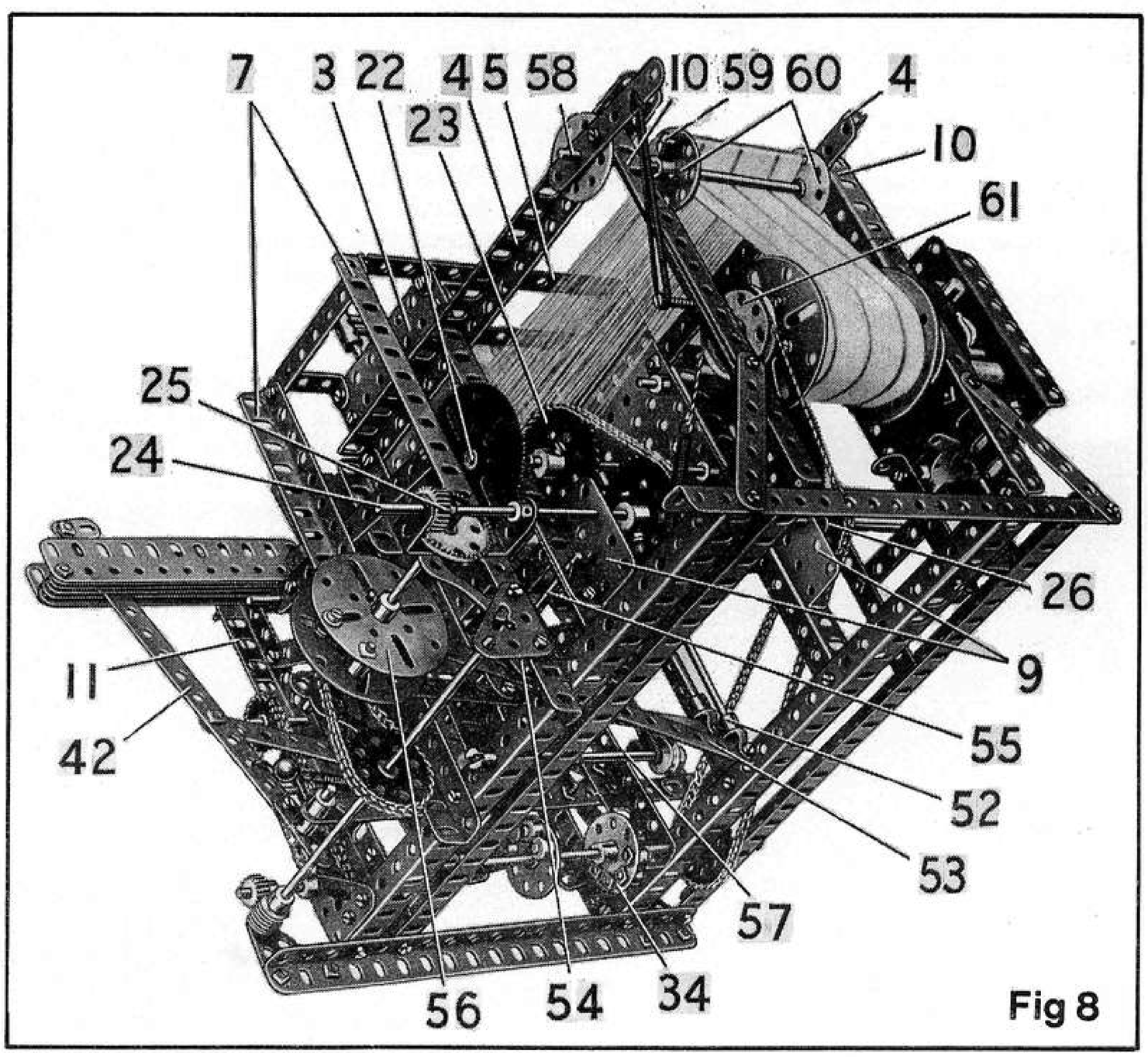
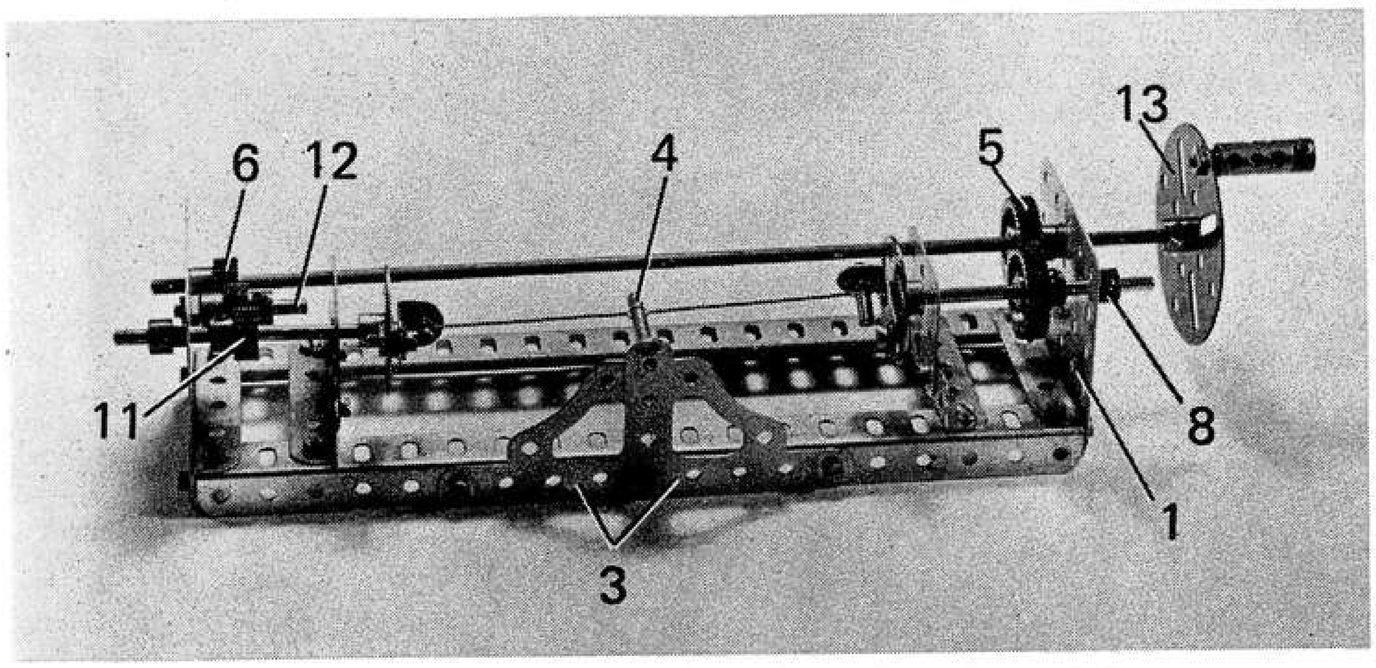


Fig 8



Spanner solves a 'Past Masters' problem with this specially designed model

HEALD-MAKING MACHINE

BEING A TRUE working model, the Meccano Loom featured on the two previous pages makes use of healds to carry and manipulate the warp threads during weaving. The healds are vital components, but unfortunately, since the model was first published twenty years ago, the purpose-made Meccano Heald (Part No. 101) which was included in the system has been discontinued. Lesser magazines might be discouraged by this, but not so the MMQ; if it isn't made, make it, we say, and the machine described here is designed to do just that!

Making your own healds sounds a daunting prospect, but in fact it is remarkably easy and the machine required for the job is simple, as can be seen from the illustration above. A solid frame work is produced from two 9½" Angle Girders, connected together at each end by a 2½" Angle Girder, the securing Bolts in each case also fixing a 2½" x 2½" Flat Plate 1 in position. Two more 2½" Angle Girders are bolted between the 9½" Girders, one through the third holes in from each end, and bolted to each of these is a 1½" x 1½" Flat Plate 2. Centrally fixed to one of the 9½" Girders are two Corner Gussets 3, overlapped as shown, a Long Threaded Pin 4 being tightly locked in the apex holes of the Gusset.

Journalled in one set of upper corner holes of Flat Plate 2 and in the corresponding holes in Flat Plate 1 is an 11½" Rod, held in place by a Collar and a 1" Gear Wheel 5 at one end and by a ½" Pinion 6 at the other end. Gear 5 meshes with a second 1" Gear 7 on a 3" Rod journalled in the remaining upper corner hole of nearby Plate 2 and in the corresponding hole in Plate 1. This Rod is free to move approximately a quarter-inch in its bearings, but it is held in tension by the action of a Compression Spring positioned on the Rod between the back of Plate 1 and a Collar 8. Mounted on the inner end of the Rod is an 8-hole Bush Wheel, to the face of which a 1" x ½" Angle Bracket 9 is fixed by its long lug, with the end of the Rod just protruding through the inner hole in the lug. A Threaded Pin 10 is fixed to the short lug of the Angle Bracket.

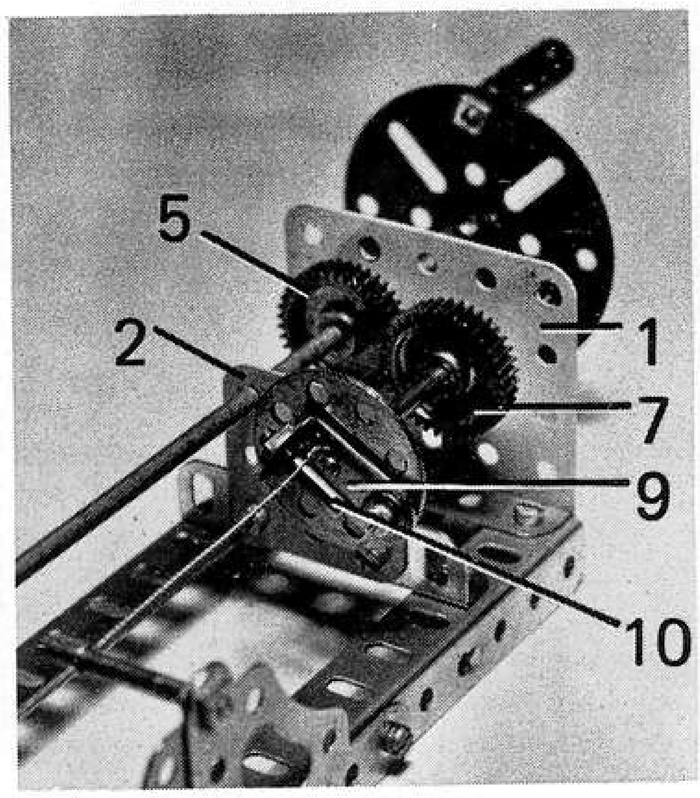
A similar Threaded Pin / Bush Wheel construction is built up and mounted on the inner end of another 3" Rod journalled in corresponding holes in remaining Plates 1 and 2. Again, the Rod is free to slide a short distance in its bearings, being held in tension by a Compression Spring and Collar, but this Rod carries a ½" Pinion 11 instead of the previous 1" Gear. The Pinion meshes with a second ½" Pinion which is free to revolve on a Long Threaded Pin 12, locked in the second row centre hole of Flat Plate 1. The Pinion, which is prevented from sliding on the Pin by a Collar, also meshes with Pinion 6 on the 11½" Rod. As a result, when the 11½" Rod is revolved, the two Threaded Pin/Bush Wheel constructions contra-rotate (revolve in opposite directions in relation to each other). A winding handle for the long Rod is provided by a Face Plate 13, to which is fixed a Long Threaded Pin carrying a loose Coupling and a Collar to serve as an easy-turn handle, although this, of course, is a non-essential refinement.

With the Machine completed, operation can begin and it should be stressed that the secret of successful heald-making lies in the wire used. We found that No. 24 s.w.g. steel or copper wire gave perfectly good results.

Cut an 11½" length of wire and form it into a loop by twisting the ends together. Extend the loop into a large sausage shape and mount in the machine by hooking the ends over Threaded Pins 10, with Long Threaded Pin 4 projecting through the centre of the loop. Then, turn the winding handle until the two Compression Springs are fully compressed – and you have one completed heald !

It will be found that the original twisted-together ends of the wire will project, but this should not effect the operation of the healds when mounted in the Loom.

Close-up of one Bush Wheel assembly



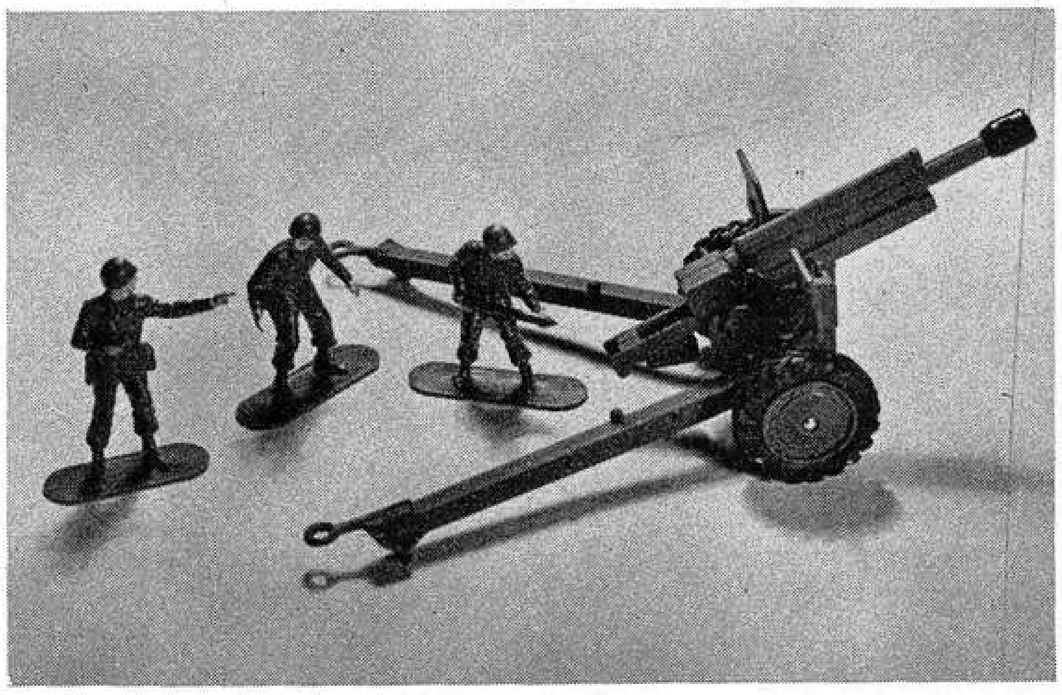
PARTS REQUIRED:

2 - 8a	2 - 31	2 - 74
4 - 9d	21 - 37a	2 - 108
2 - 12b	19 - 37b	1 - 109
1 - 13	4 - 38	2 - 111c
2 - 16a	5 - 59	2 - 115
2 - 24	1 - 63	3 - 115a
3 - 26	2 - 72	2 - 120b

No. 24 s.w.g. Steel or Copper Wire

DINKY TOYS NEWS

A look at the new Dinky Toy models released since the last issue of "Meccano Magazine Quarterly".



Above, No.609 U.S. 105mm Howitzer with Gun Crew, produced to 1/32nd scale and measuring 199mm in length. Features include a spring-loaded shell-firing mechanism, an elavating gun barrel and rubber tyres. Finished in military green, it comes complete with three action-stanced scale soldier figures for increased realism and play-value. Below, No.412 Bedford 'AA' Van, produced to 1/48th scale, has an overall length of 90.3mm. Features include a highly-detailed casting, moulded windows, moulded seats, Speedwheels and a roof-console with red-light representation. Overall finish is in yellow with the 'AA' logotype on the sides, rear and roof-console.

Above, No.678 Air Sea Rescue Launch, produced to 1/180th scale, has an overall length of 170.5mm. Features include an intricately detailed casting, realistic representations of a life raft, radar scanner and mast, davits, swivelling rear gun turret and life belts. Mounted on Speedwheels, the model is finished in black with grey decks, yellow topsides and orange ancilliaries, and comes complete with a separate life-raft and "ditched" pilot-figure unit.

Above, No.1037 Chieftain Tank Kit is a kit version of the existing Chieftain Tank. The Kit contains 42 components which build-up into a real die-cast Dinky Toy sporting all the action features of the ready-made toy. Packed in a new style "landscape" format Book Pack, the kit also includes six "shells" for its firing gun, flexible tank tracks and a phial of military green enamel. Although not illustrated here, also released is No.1030 Land Rover Breakdown Crane Kit. Packed in a Book Pack, it contains 31 components, including Speedwheels, the metal parts being pre-treated ready for painting. The Kit comes complete with two sample phials of enamel, and a transfer sheet of 'MOTORWAY RESCUE' and 'RESCUE' labels and yellow and white registration plate labels.

MOGUL is HERE! *continued from Page 67.*

The obvious idea is that it is an immediate way of selling more Meccano, but, in fact, this is not the case. The sort of youngster receiving a MOGUL as a present would be too young for Meccano.

The value is long term. Like Meccano, MOGUL Toys are designed to last, therefore the MOGUL youngster will still have his toy when he reaches Meccano age. It is then that he will become aware of the practical association between his MOGUL Toy and Meccano and he might well ask for a Meccano Set to use with his MOGUL. Although he might now see himself as being too old for simply playing with a steel toy, building a Meccano construction to fit in it is a different thing altogether and would not hurt the youngster's pride. Even here, though, the sale of the initial Meccano Set is not important so much as the possibility that the Set may start the youngster on the road to being a true Meccano enthusiast.

For launching purposes, the initial MOGUL range of six models is being split into two groups of three models each. The first group, now going to the shops, consists of the Army Truck, the Articulated Tipper and the Dump Truck. The second group, consisting of the Tractor Digger, Mobile Crane and Tractor and Trailer, is scheduled to go out to dealers in October, it being bad policy to 'flood' the market by launching all six models at the same time.

It is my belief that MOGUL will soon be a name to reckon with in the big steel toy market around the world.

SET 9 MODEL...SET 9 MODEL...SET 9 MODEL

HAND STACKER

A Mobile Goods Lift

by Spanner

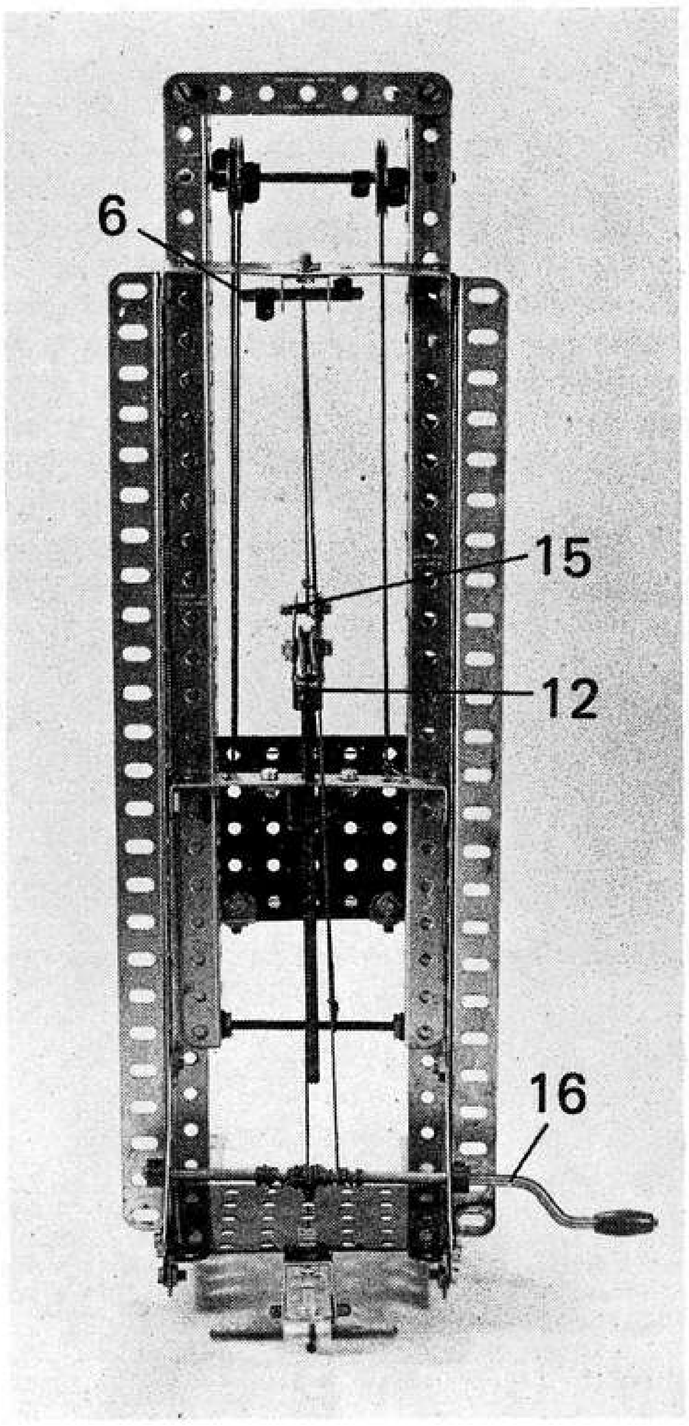
ALTHOUGH THE LARGER Meccano Sets contain a large selection of components, it does not necessarily follow that models built with the sets must invariably be giant constructions. Smaller models can be built without disgrace! In fact, particularly good small models can often be produced precisely because of the large selection of parts available. Featured here, for example, is a Hand Stacker – a goods lift used in storerooms and warehouses – built from a No. 9 Set. It is comparatively simple, yet, because of the supply of Angle Girders in the Set, it is rigidly built and efficient. Using a smaller set, without Angle Girders, it would not have been possible to achieve this.

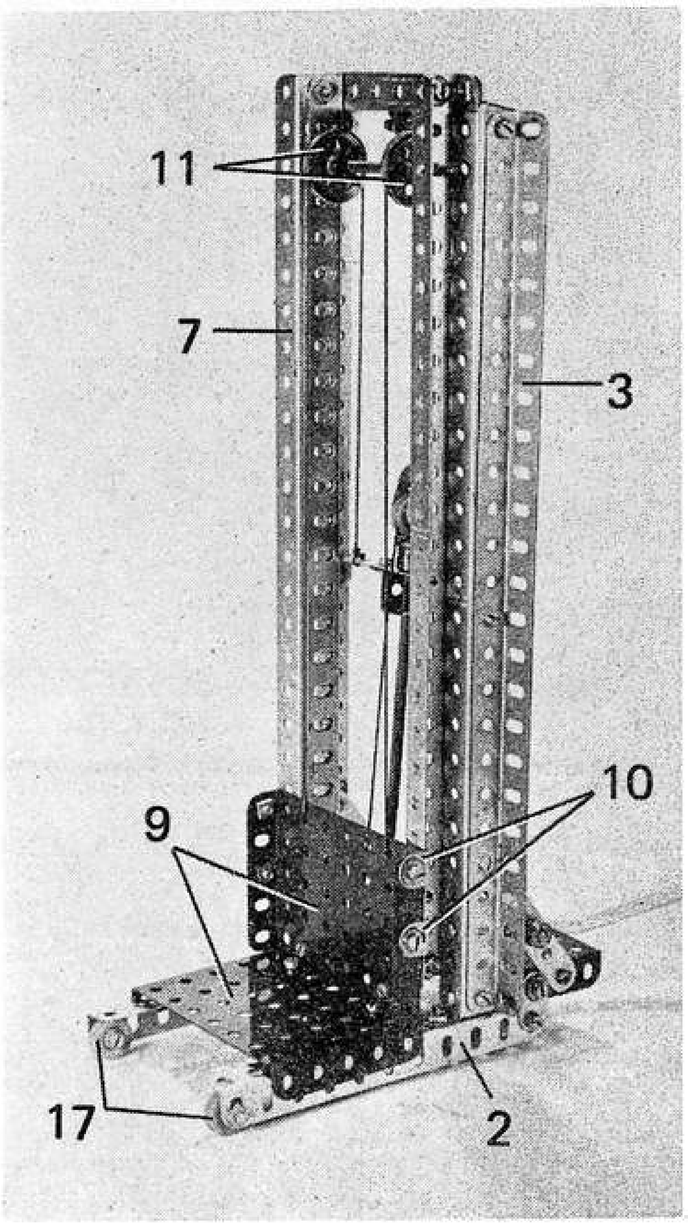
As regards construction, the trolley and fixed frame section is built up from a 3½" x 2½" Flanged Plate 1, to the centre of each flange of which a 5½" Angle Girder 2 is attached, as shown, by a Fishplate. Two reversed angle girders 3 are then each built up from two 12½" Angle Girders, the slotted flange of one Girder being bolted to the round hole flange of the other to give the reversed angle shape. The reversed girders are tightly fixed to the inner corners of Plate 1 and note that the lower end of each Girder is also attached to Angle Girder 2 by an Angle Bracket. A 3" bracing Strip 4 is bolted between the 5th hole of each girder 3 and the second hole in the flange of Plate 1.

Girders 3 are themselves connected together at the top and through their 14th holes from the top by two 3½" x ½" Double Angle Strips 5, the securing Bolts being fitted with Washers to achieve the correct spacing. A Double Bent Strip is bolted to the centre underside of the lower Double Angle Strip, while a Double Bracket is bolted to the centre underside of the upper Double Angle Strip. A 1½" Rod 6 is held by Spring Clips in the lugs of the Double Bracket.

The Stacker incorporates a double-lift feature whereby not only the load platform rises up its guide frame, but the guide frame itself also rises up the fixed frame described above. The guide frame is supplied by two "U" section girders 7, each built up from two 12½" Angle Girders fixed slotted Flange to slotted Flange, with the flange of the forward Girder outside that of the rear Girder. A space, or groove, should remain between the tip of the outer Girder Flange and the round hole flange of the inner Girder. This groove is important as it serves as the running groove for the rising motion of the guide frame. The round hole flanges of the "U" section girders locate behind the forward flanges of reversed angle girders 3, the reversed girder flange locating in the groove. Once in position, the two "U" section girders are connected together at the top by two 3½" Strips 8, placed one on top of the other for strength, and are connected at the bottom by a 3" Screwed Rod locked in place by Nuts. The latter method is used as the Screwed Rod enables the distance between the two "U" section girders to be carefully adjusted so that the guide frame slides easily on its reversed angle girder runners, but with the minimum amount of side-play.

The forward flanges of the "U" section girders serve as the runners for the load platform. This is simply built-up from two 3½" x 2½" Flanged Plates 9 connected together at right angles by two Angle Brackets. Using their slotted holes, four Angle Brackets 10 are bolted, two to each flange of vertical Plate 9 to serve as the platform running guides. The Angle Girders are arranged so that a space remains between the spare lugs of the Angle Brackets and the back of the Flanged Plate. The forward flanges of "U" section girders 7 locate in this space. Journalled in the third holes from the top of Girders 7 is a 3½" Rod held in place





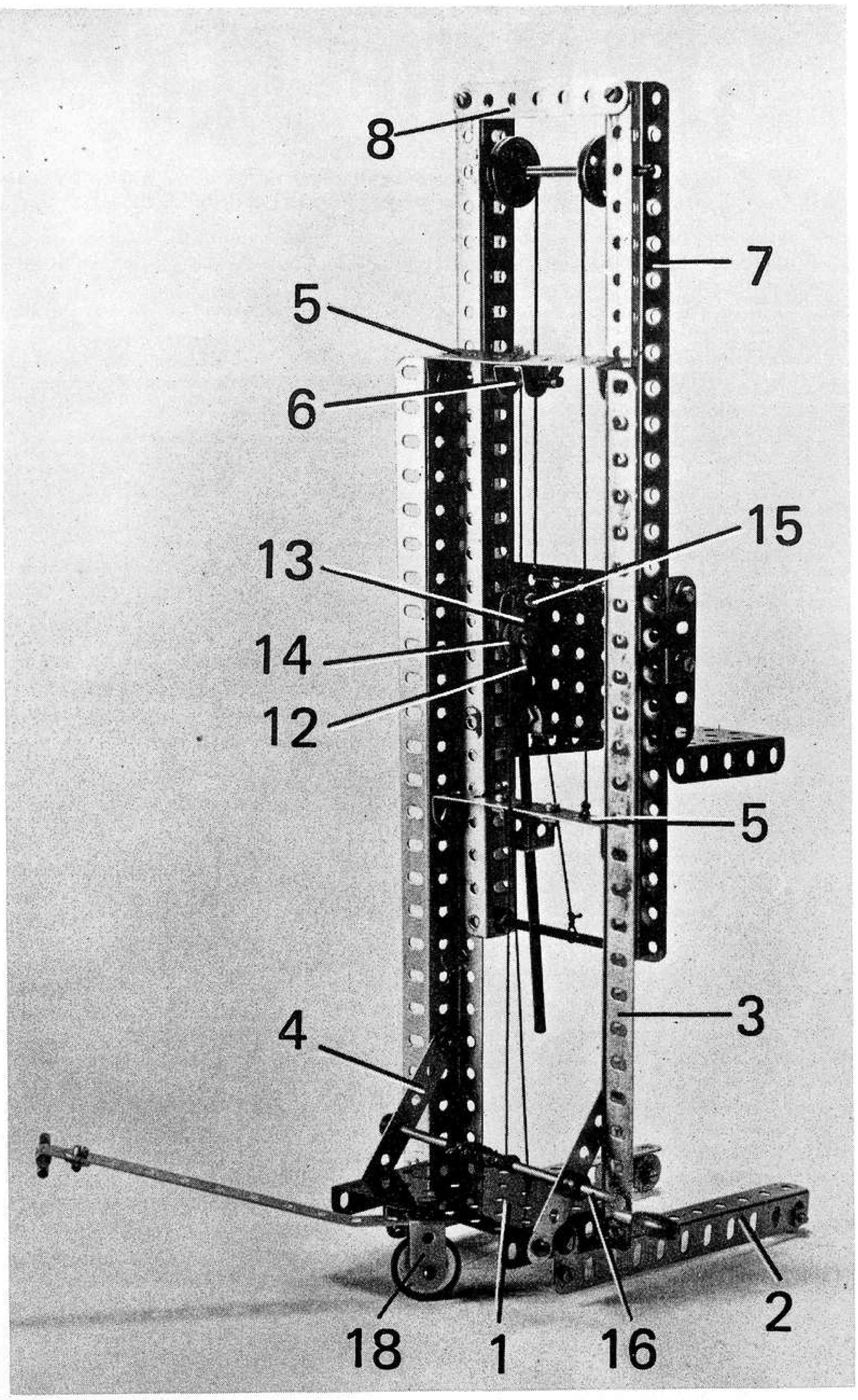
by Spring Clips. Revolving freely on this Rod are two 1" loose Pulleys 11 which are prevented from sliding on the Rod by further Spring Clips.

A simulated hydraulic ram is now built up from a 5½" Rod mounted in the centre hole of lower Double Angle Strip 5 and in the Double Bent Strip bolted to it. Fixed on the upper end of the Rod is a Small Fork Piece 12, the arms of which are extended by Fishplates 13 on a ½" Bolt which also carries a ½" Plastic Pulley 14 between the arms of the Fork Piece. A ¾" Bolt 15 is held by a Nut in the upper holes of the Fish-plates, as shown.

At this stage, the cording arrange-ment can be added. A 5" Crank Handle 16 is journalled in Strips 4, where it is held in place by Collars (note that the Crank Handles are no longer fitted with a knob; we used an old example). A length of Cord secured to the Crank Handle is then taken up and over Rod 6 and brought down to be tied to Bolt 15. Another length of Cord is tied to the Screwed Rod at the lower end of the guide frame, this being brought up and over Pulley 14, then taken down and tied to the front centre of Flanged Plate 1. Finally, a third length of Cord is tied through the second hole from one end of lower Double Angle Strip 5, this being taken up and over one Pulley 11, then down and through the top row second hole from the nearest end of Flanged Plate 9. It is threaded back through the second hole from the other end of the Flanged Plate, then brought up and over the other Pulley 11 to be taken down and tied through the second hole from the remaining end of Double Angle Strip 5. Needless to say, all the cords should be taut.

With this cording arrangement, the load platform should rise up its guide frame and at the same time, the guide frame rises up the fixed frame. The two movements operate together.

We are now left with only the wheels to add to complete the model. The front wheels are simply provided by two ½" Plastic Pulleys 17 revolv-ing free on ½" Bolts locked in the end holes of Angle Girders 2. The jockey wheel and handle unit is built up from a 1" Double Bracket 18 carrying a 5½" Strip, fixed between its lugs by a 3/8" Bolt. A Washer is added to the Bolt shank which is then located through the front row centre hole of Flanged Plate 1 and two lock nuts added to hold the assembly in position while allowing it to pivot. Journalled in the end holes of the lugs of the Double



Built from a Meccano No. 9 Set, this Hand Stacker is a solid, efficient model.

Bracket is a 1" Rod which is held in place by a Collar and a 1" Pulley between the Bracket lugs. To accom-modate both the Collar and the Pulley, it is necessary to open out the lugs of the Double Bracket slightly. Last of all, a handle is provided by a 2" Rod held in a right-angled Rod and Strip Connector which is bolted to the end of the 5½" Strip. The Strip itself is bent upwards slightly, as shown, to increase realism.

PARTS REQUIRED

1- 2	1-11a	1-22	1- 45
2- 3	8-12	2-22a	2- 48b
2- 4	1-16	3-23	2- 53
8- 8	1-17	4-35	3- 59
2- 9	1-18a	47-37a	1- 80c
4-10	1-18b	32-37b	3-111a
1-11	1-19h	21-38	1-116a
			1-212a

MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Reports should be approximately 350 words long, and should reach us by the end of the second month before month of publication.

CAPE TOWN MECCANO CLUB

Bad News! We have been forced into recess for a couple of months. Tatchel and Pam Venn are going to England and Europe for some seven or eight months (hoping to meet many Meccanomen), and our Chairman, Michael Adler, has had to leave suddenly for Europe and America. With such a large chunk of the active core missing, there is no point in holding meetings.

However, in September we get off with a bang again by exhibiting at the Herzlia School Fete. This is a very big affair and we should receive much publicity, which is something that we need badly to try and boost our membership.

Ours is a small Club totalling six active members in Cape Town and two Country Members. We meet once a month on Saturday afternoons, the wives joining in, and, although we adhere strictly to business, we run on very sociable lines. We haven't time – though we wish we had – to construct a new model for every meeting, but whenever we have something of interest we bring it along, so usually one new model at least arrives. However, to make up for our small membership we have large Outfits, and the last count totalled thirty-seven built-up models existing among members, though there must be well over forty by now.

For the Lady Buxton Home Fete on the 2nd March Tatchel completed the half-scale model of the 'Seagull' Outboard Engine (M.M. Jan. 1934). This Model is beautifully constructed in Tatchel's usual neat manner and full marks go to the original designer for an excellent model on such an original subject. He is taking the model with him to England and hopes to display it at the Henley-on-Thames Exhibition.

He also modelled a Vintage Car scaled to the Meccano Spoked Wheels - another very nice model.

Richard Schonegeval has done a very good job of reproducing the Heavy Artillery Scammel Tractor featured in the M.C.S.L.

Kenneth Leibbrandt has built the old favourite Two-cylinder Steam Engine and Boiler (always a good exhibition model) and I have been experimenting with models designed for the kids. One is a 'Chase the Monkey' novelty; a motor causes the monkey to run up a tower and turning the handle brings it down again. You have to turn very rapidly though, otherwise it will get away! Another is the Exploding Ship from the Blue and Gold Period Set 7 Manual - it was amazing to see all the different ways they found to reassemble all the bits and pieces in order to set off the next explosion. These were both very popular at the Buxton Home Fete.

COLIN COHEN

HENLEY SOCIETY OF JUNIOR MECCANO ENGINEERS

The quality of the meetings has risen ever since the Society's inauguration in August last year, and the March meeting was no exception.

Among the many models shown were a pair of Airscrew Vehicles by John Mildenhall and Peter Simpson. John's model was powered by a 0.8cc Glow Plug engine and travelled at a very high speed; Peter's was similar, but heavier and with brakes. Tim Ball demonstrated a Steam Powered Caterpillar Tractor, and Chris Reeve showed another tracked vehicle, this time a Multikit Petrol Tanker, and a model Guard's Van.

Two talks were given at this meeting; the first was by Iain Mitchell, who talked about Giant Block-setting Cranes, Mike Nicholls gave a talk on the history of Meccano lighting, giving particular attention to the pre-war Lighting Set. Both of the above have published a written version of their talks in the current (June) issue of the "Junior Meccano Engineer" magazine.

The April meeting was a day of giant cranes. Ian Henwood demonstrated a giant Block-setting Crane, which turned on a pair of 9-7/8" Flanged Rings. The other crane was a 6' Dock Crane by Peter Simpson. Naturally, many other models were shown, and we discussed the forthcoming Hildenborough coach trip. On April 27th we hired a luxury coach to travel to Hildenborough and visit the Holy Trinity Meccano Club meeting. An impressive display of models was mounted by our Club members at the meeting; these included a steam-operated Big Wheel by Nigel Berry, and an almost completed Fire Engine by Tim Ball. Paul Bennett showed a Power Steering Test Rig, and Jeff Leahy brought along a powered tracked vehicle. John Mildenhall took a beautiful model of a Stiff-leg Derrick. It was so strong and powerful that it was able to lift a chair with ease. The coach returned to Henley at 9.00 in the evening, and all the members had a most enjoyable day.

Our May meeting had a rather small turnout of Members since there happened to be a football match somewhere! Although this reduced the number of models demonstrated, those shown were of a high standard. Ian Henwood again demonstrated his GB-SC. This time, however, he had re-designed it slightly. Nigel Berry showed a Gantry Crane which operated at the true scale speed, unlike most models of that particular subject! Bill Roberts, a member of the adult Society, demonstrated his model of a conveyor system which transported matchboxes. Each time a matchbox passed it actuated a 4EL, Impulse Counter or a lamp. Tim Ball demonstrated another of his popular steam-powered models. This time it was an early Fire Engine, and it made several circuits of the meeting hall whilst spraying everyone with steam.

All our members derive a great deal of pleasure from their meetings and we look forward to the time when there is a Society of Junior Meccano Engineers in every town, so that our enjoyment may be shared by all our fellow Junior Meccano Engineers.

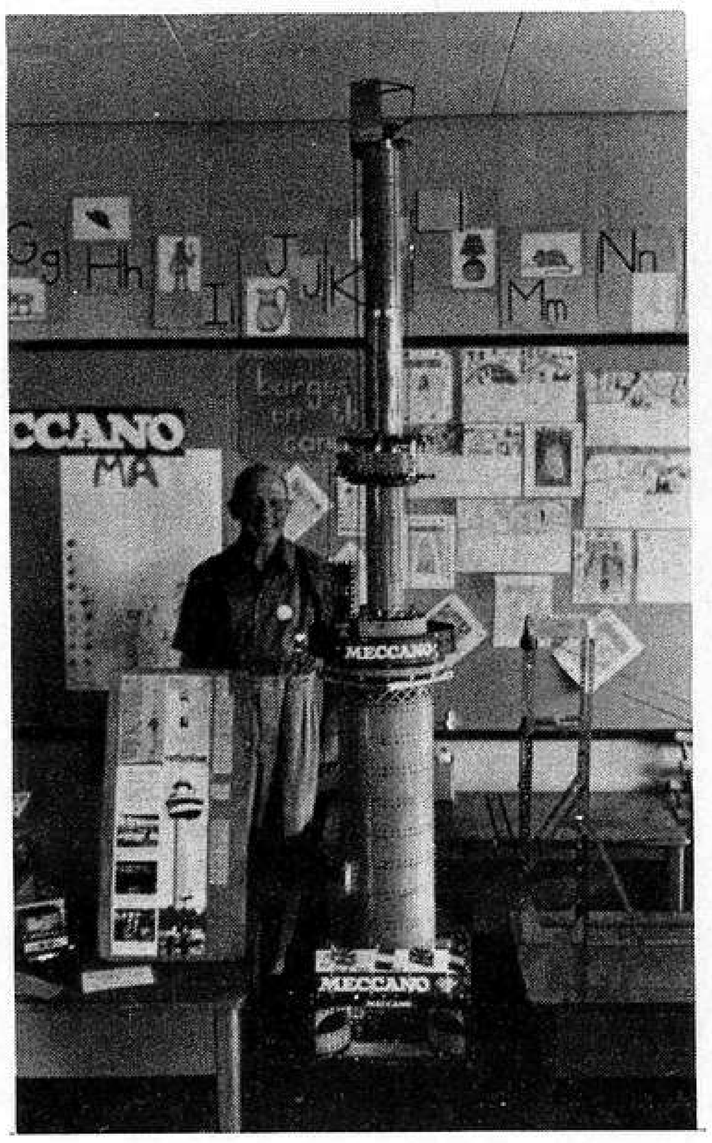
PAUL SMITH

HENLEY SOCIETY OF MECCANO ENGINEERS

Kim Fisher was Chairman of our meeting held on June 8th and once again members' efforts in providing films and in bringing their models, together with the excellent refreshments arranged by members' wives, made for a most enjoyable evening. Attendance was good with some forty present, including juniors who stayed on after their afternoon session, and whose models, reported elsewhere, provided much interest for the "grown ups".

The centrepiece of the evening was a very interesting film, "The Big Lifters", kindly made available by Denis Thomas. It showed in fair detail the manufacture and the erection of two 750 ton cranes to be used in the fabrication of North Sea oil platforms. In addition, we saw two short NASA films of the Apollo 14 capsule and Saturn 5 rocket. Finally, Harry Gower showed us his slides of past Club meetings and some of the models he has built. Such slides are always most welcome, provoking as they do discussion and reminiscences.

Among the models displayed Bob Faulkner's Giant Blocksetting Crane, which captures so well the atmosphere of a by gone age, was matched in size by Ted Summerfield's example of the GMM 250 ton Pontoon Crane. This incorporated a modified gearbox and roller bearing and looked most effective in red, green and silver. Paul Jack brought two models both of which worked very well. One was an 1888 James Holden 2-2-2 Loco powered by the Meccano steam engine; the other was a Grandmother Clock using a No. 1 Clock Kit but including a nicely conceived automatic rewind



On 15th June, the Stevenage Meccano Club were joined by the Henley Society of Junior Meccano Engineers in a combined exhibition at Pin Green School, Stevenage. Many fine models were displayed by both Clubs and the exhibition attracted a large number of visitors. Our picture below shows a general view of only part of the display, yet plenty of appealing models are in evidence. Left, Bill Roberts of the Henley adult Club pictured with his model of the Rotterdam Euromast during the exhibition.

mechanism powered by a motor mounted on a tilting platform.

Mention must also be made of a motor-driven adaptation of Konkoly's Guilloche Machine made by Ernest Chandler, a small but very realistic First World War biplane by the Chairman, and a nicely made Traction Engine built by Chris Harrison from a photo in Bert Love's book.

Our programme of visits to other Clubs continues and everyone enjoyed the trip to the Holy Trinity Meccano Club at Hildenborough in April.

P. A. KNOWLES

MIDLANDS MECCANO GUILD

The 14th meeting of the MMG took place in the Grieg Memorial Hall, Alcester, Warks., on Saturday, 30th March last. Since 10 members had advised they were unable to attend for various reasons,the number at the meeting - about 30 - was on the low side compared with recent Guild meetings, but nevertheless the exhibition room looked quite full of fascinating models when a prompt start was made at 2-10 p.m.

Towering over the rest of the models was Tony Homden's scale model of the 1905 battleship H.M.S. 'Dreadnought' over 7ft long, and complete in every detail from keel to 'crow's nest'. Several members had mini exhibitions of their own, including Alan Partridge (Orreries and Mazes), Roger Wallis (Transport - a tram trolley and 'bus) and Michael Walker (American Cars).

Esmond Roden, our President, had his own version of the SML 4 Block-setting Crane, complete with flashing warning lights and remote control panel, whilst Ernest Chandler, our Chairman, showed what immaculate designs are possible from the pen of a carefully constructed Konkoly Meccanograph.

We nearly had a 'War of the Roses' since Bill Barker from Clitheroe and Phil Ashworth from Hull each had remote-controlled tanks, developed from the Army Multikit. A further coincidence was that both Jim Gamble and David Guillaume had program-controlled tramcars, one sequenced by mechanics and the other by electrics, but each adding its own nostalgic 'ping' to the general hullaballoo.

For the first time the Guild opened its doors to the Junior Meccano Engineer, in the 14 to 18 age bracket and welcomed four young men whose models shamed some of the older brigade. They were John Briggs (Grandfather Clock), Matthew Guest (Aero Engines), Martyn Brown (Saladin Armoured Car) and Graham Brown (2-6-2 Tank Loco).

Regretfully, space precludes mention of any more of the fine models on show. Mention must be made, however, of the fact that one of our totally blind members, John Lorimer, was able to join us for the day, and like the rest of us, had a thoroughly enjoyable time.

PHIL ASHWORTH

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

Following their successful first meeting in March, the S.A.M.C. membership are now preparing their models for the various summer and autumn shows around the country. Some of these models will be described in the M.M.Q. by kind permission of the Editor. Meetings on a small scale take place at members' homes during the 'close' season and those Officers in easy reach of Birmingham have met regularly to review the Society's progress and to hear about the other member's work. Correspondence among the membership is always encouraged and this is reinforced by regular Newsletters and the 'DRIFT' (official journal of the Society) which features some of the early history of Meccano supplied by the Society's President, Hubert Lansley, who was responsible for all of the 'Spanner' articles in the Meccano Magazine from 1923 – 1930 when he was on the staff at Binns Road.

Readers who wish to obtain photographs of the Society's models, should write in the first place to the Hon. Sec: Mr. B. N. Love, 61 Southam Road, Hall Green, Birmingham 28 enclosing S.A.E. for details.

B. N. LOVE

STEVENAGE MECCANO CLUB

During March, Roger Le Rolland held a one-man Meccano exhibition in the showroom of a Stoke-on-Trent garage. His display, which created considerable interest, was sponsored by Shell Mex & BP Ltd., and included a Rolls Royce and several aircraft models.

The Stevenage Club has put on two local exhibitions recently. On April 6th, a display of models at St. Hugh's Church helped the Junior Adventurers to raise funds for a school being built in Korea. Several of the new Multikit models were shown and Peter Brown built a model of a giant caterpillar, animated by three d.c. motors with 6-ratio gearboxes operating in a programmed sequence. The creature raises itself up in a most realistic manner, shakes its head slowly, then settles down again. It is now on display in our local Meccano dealer's window, causing much amusement to passing shoppers.

On May 18th at Etonbury School, Stotfold, Beds. 13 S.M.C. members put on an exhibition of 43 models which raised £8.00 towards funds for a school swimming pool. Adrian Ogden built a fine Meccanograph which worked throughout the display; also featured was the Magic Light described in the April 1974 MMQ which duly fascinated the many spectators – young and old.

On April 17th, Peter Randall gave a lecture on Hornby Train History, and described other Meccano products of the period 1930 to 1950. Several S.M.C. members belong to the Hornby Railway Collectors Association and attended the recent A.G.M. in Watford.

Dennis Higginson (S.M.C. Secretary) would like to send a personal greeting to Bill Steele of the Transvaal Club, who lived and Meccanoed in Stevenage during the late 1960's.

A welcome is extended to new members: Timothy Clayfield (9), Stephen Wooderson (9), and Keith Assender (10) all from Stevenage; also to adult member Raymond Moss from Cockfosters, Herts.

JOHN FOORD

TRANSVAAL MECCANO GUILD

The meeting of the Transvaal Meccano Guild was held at our new venue, the Salvation Army Hall, in Rissik St., Johannesburg, and as there were no complaints at all, I can only assume that everyone was satisfied.

The Matthews family were all in attendance to help with the canteen and preparation of the hall, and our thanks to Dianne Steele for her help in the canteen also.

I have had confirmation that we are wanted at the Rand Hobby Fair again this year, and with an even bigger area - something like 4,000 square feet - and all Meccano, Hornby and Dinky. Can you imagine it! We packed in 35,000 people during the seven days last year, so let's see if we can make it 40,000 this year!

A set of Rules, drawn up to prevent the use of non-Meccano parts and mutilated Meccano parts in Meccano Models, was presented to all members present, and after quite a heavy discussion, members voted with an approximate two-thirds in favour. However, since the meeting I have sent new club application forms and rules to all members, including the country members, and the result has been an overwhelming 'yes' in favour of a much more purist club.

The models on show at the meeting were too numerous to be able to describe them all, but I feel I must mention a few. Charlie Roth had on show his magnificent lorry chassis for a giant Coles crane which will eventually support a 20ft jib. Bill Steele showed the base, creeper tracks and bearing for his Bucket Wheel Excavator, and there was a very nice Motor Chassis by Glen Luke with some very good suspension work. There were also two complete (8ft dia.) circles of rails with three Meccano working locomotives, all by our two Pretoria members, Jaap Kies and Pierre Marais. These models, will, I hope, be at the Rand Hobby Fair in September. Jaap also managed to find time to build a steam-powered motor car, which was driven around the hall by Joe Crettaz, one of our new members. Joe had a smile from ear to ear, and a look of sheer delight (such as a youngster would have on Christmas morning on finding a Meccano Set in his stocking!) whilst operating it.

At future meetings, there will be short lectures on Electricity and Meccano by Bill Steele, and possibly further lectures on the use of Gears and Mechanical principles by Paul Hatty. These lectures, we hope, will help the newcomers to Meccano who find the world of electricity, gears and mechanisms a little strange or difficult to understand.

PETER MATTHEWS

(Additional members are always welcome. Please contact P. Matthews, 19, Joan Road, Glenanda South, Johannesburg, 2001, South Africa. Telephone 28-3262).

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Admission: Exhibitors Free — Adults: Friday 25p. Saturday 10p. Children: Friday 10p. Saturday 5p.

COMPETITIONS will be held at the Exhibition, each with three age classes: Aged 10 years and under, Aged 13 years and under, and Aged 18 years and under. The competitions are as follows:-

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The first local group started about a year ago in Henley-on-Thames, and the membership list is up to about 60. The members meet monthly and make occasional visits to other clubs by very enjoyable coach trips.

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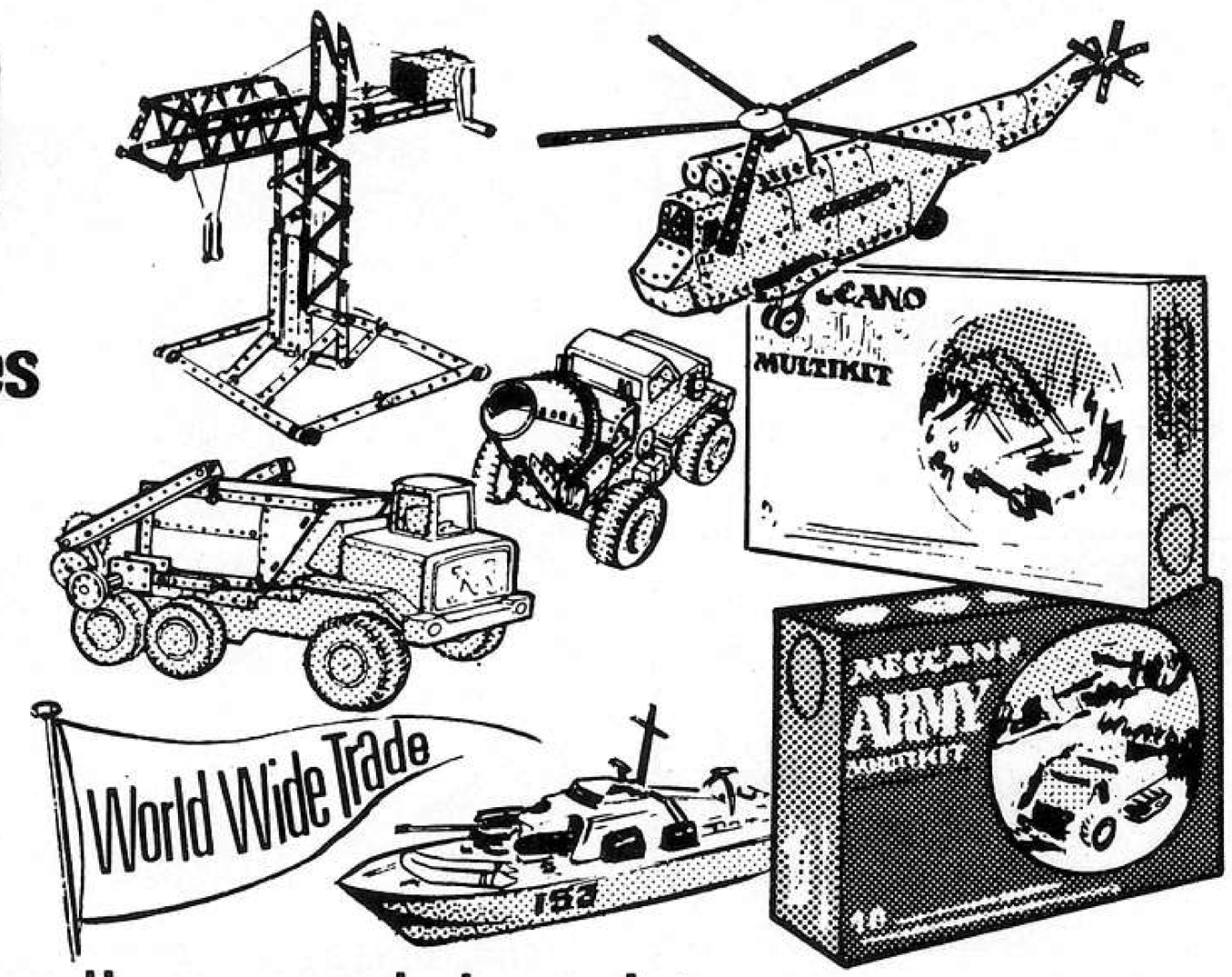

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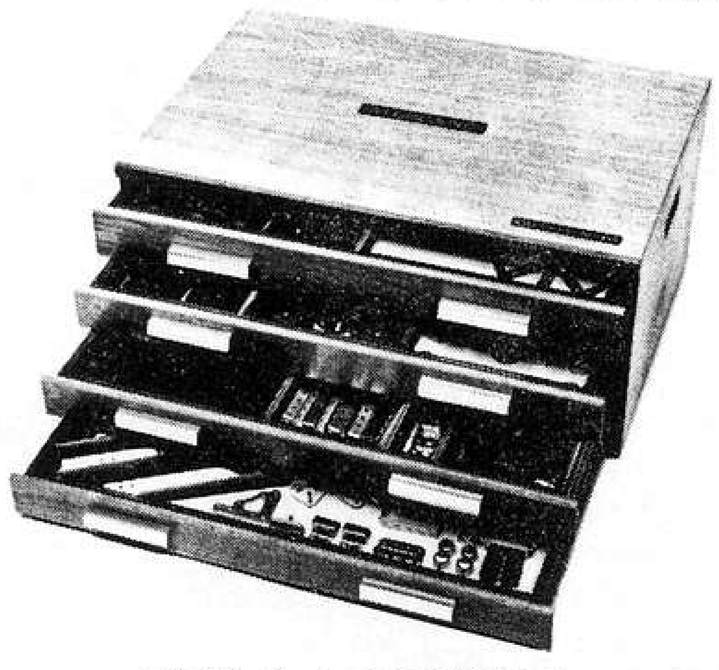

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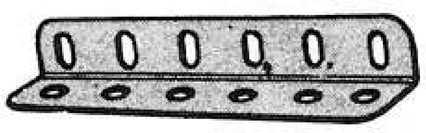

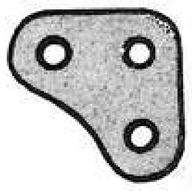

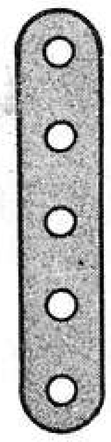

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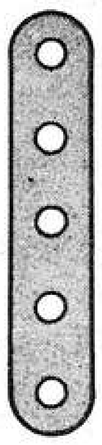

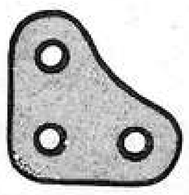

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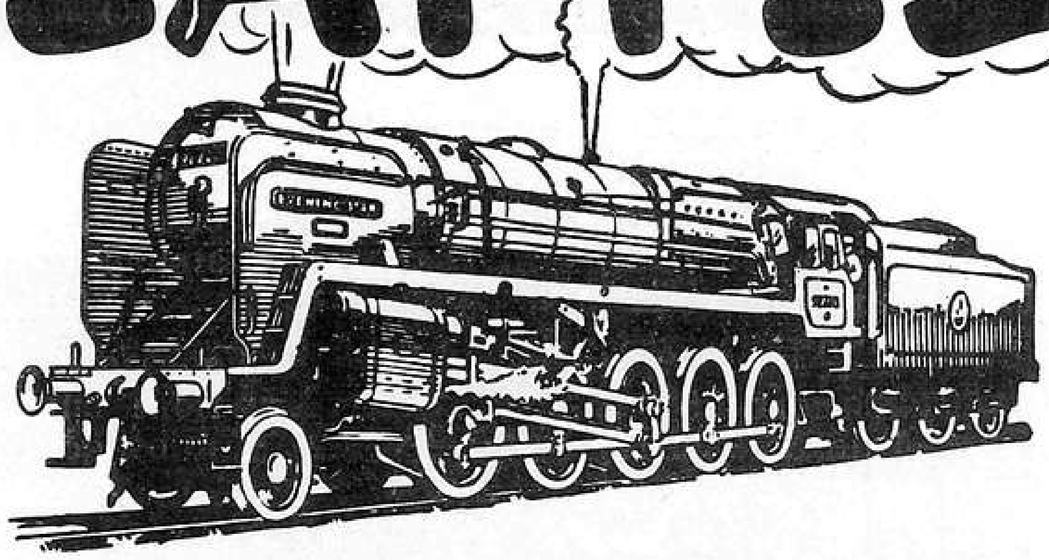

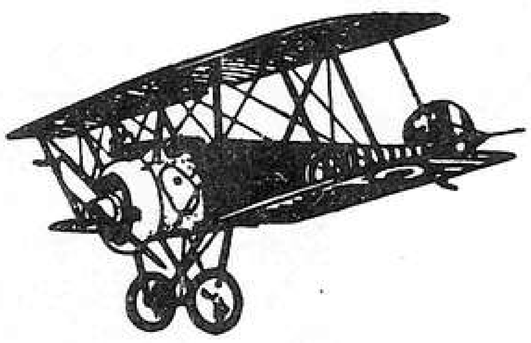

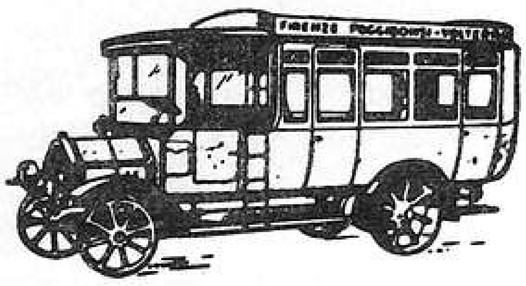

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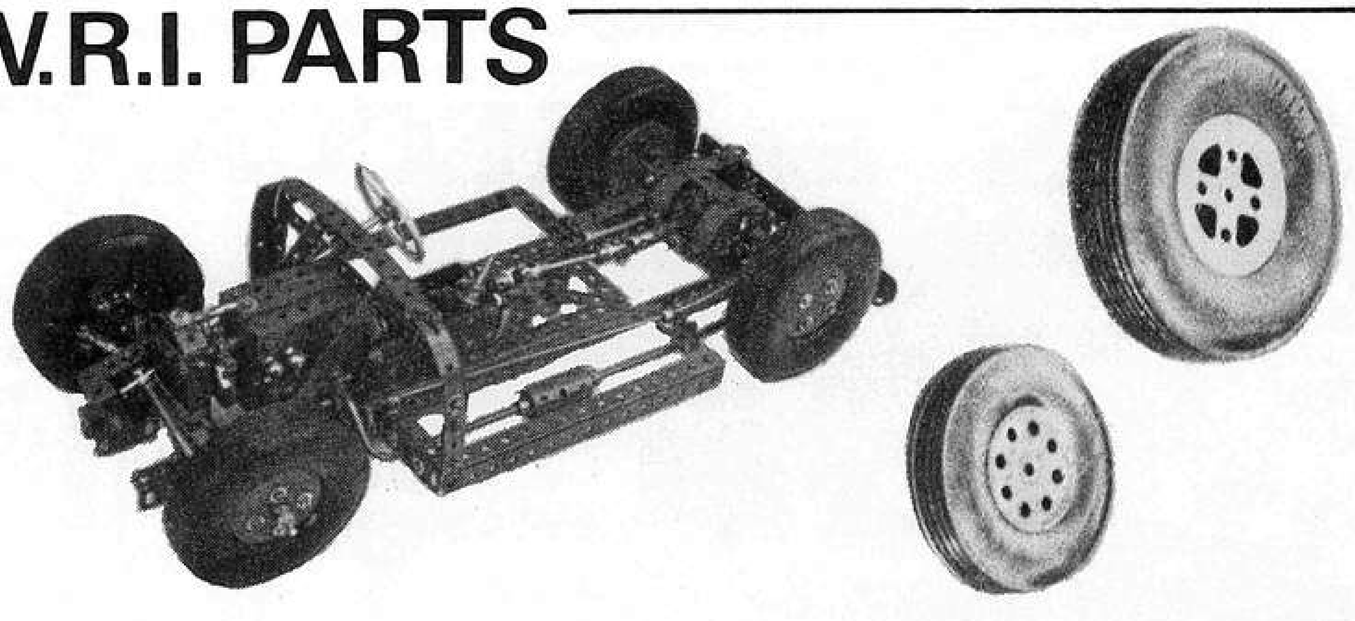

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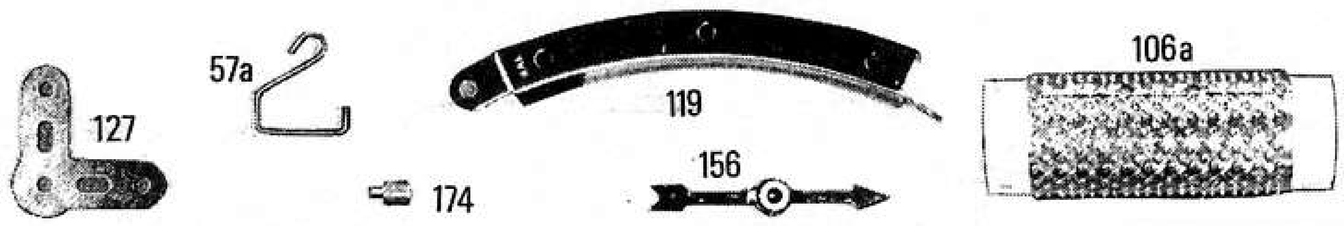

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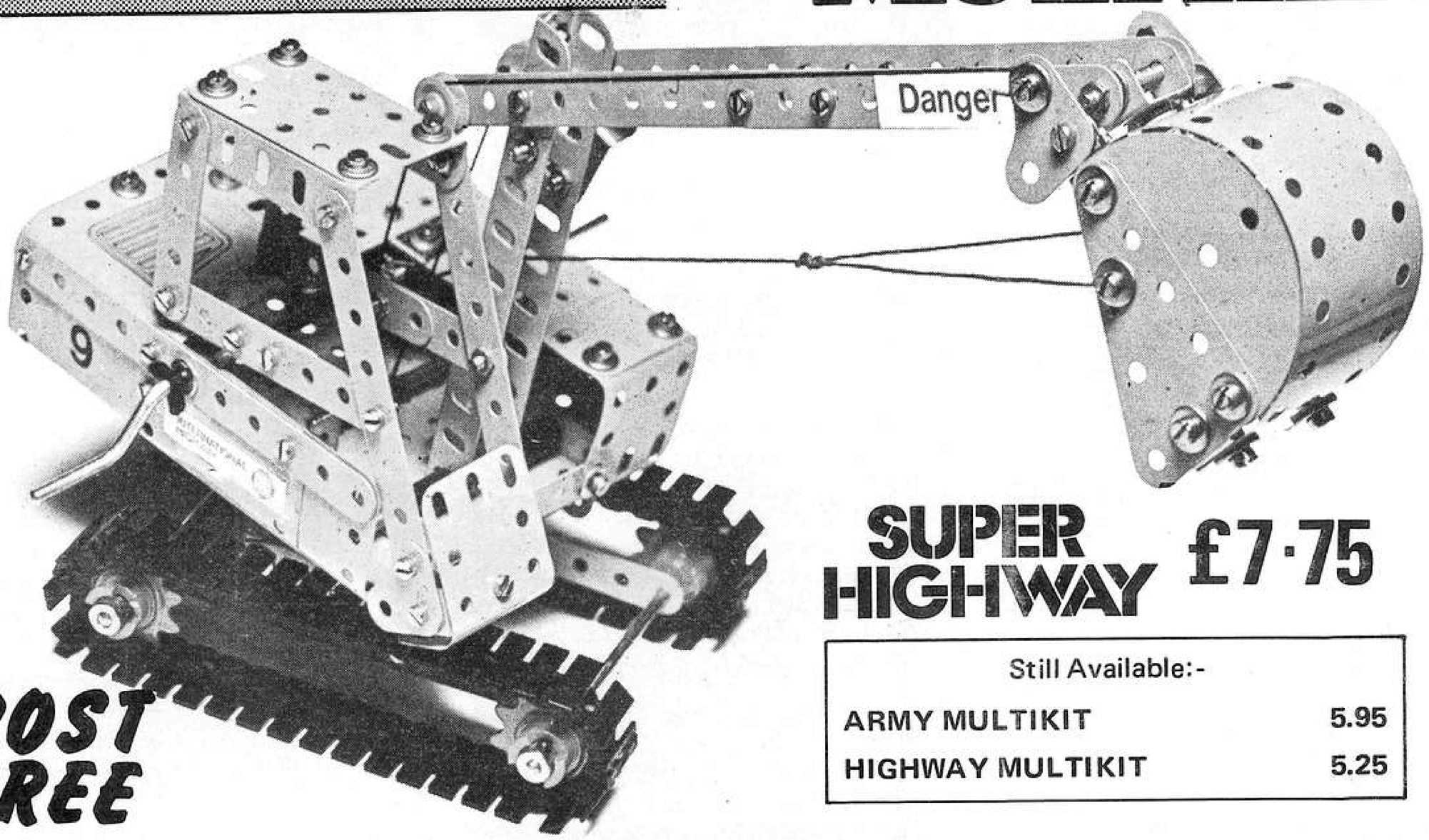

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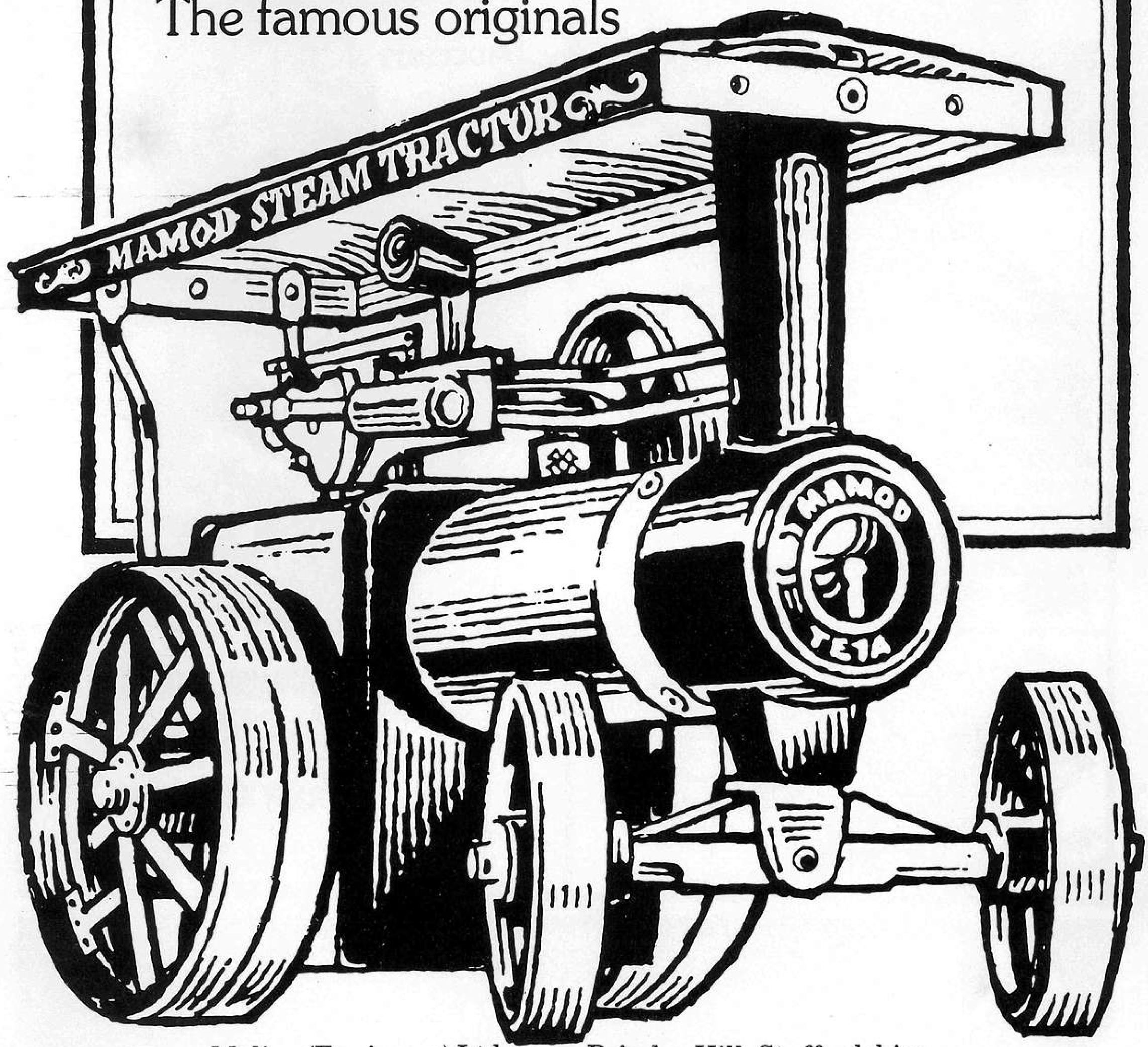

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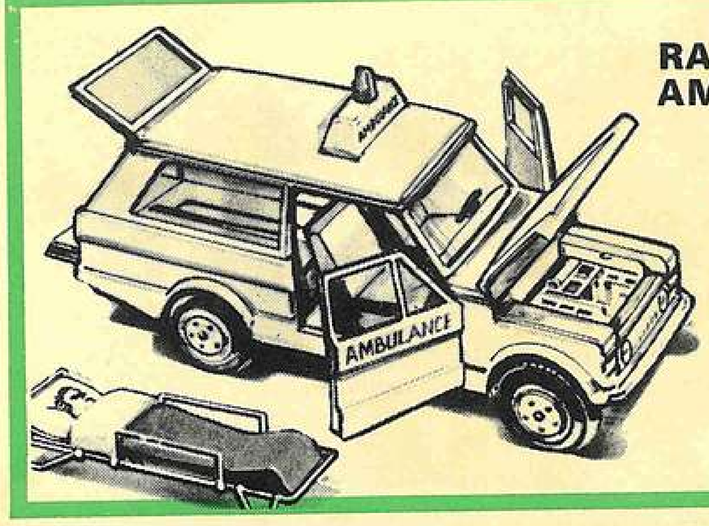
RANGE ROVER AMBULANCE

Model 268



- Opening doors and bonnet
- Folding seats
- Opening tailgate
- Casualty on stretcher

109 mm long

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MECCANO Magazine

Supplement to the July 1974 issue

POWER LOOM

A Classic from the 'Fifties

THE FOLLOWING building instructions are intended for use in conjunction with the photographs of the Meccano Power Loom which appear on Pages 70 and 71 of the July, 1974 issue of Meccano Magazine Quarterly. The Loom, which is presented in the Magazine as Model No. 4 in our 'Past Masters' series, first appeared in the December, 1953 and January, 1954 issues of the "MM". It is therefore important to stress that the instructions here are themselves reprinted from the original Magazines, with only the photograph figure numbers being changed to conform to the MMQ layout and reference to the current E15R Motor being substituted for the original power unit which was a now-obsolete E20R Motor. We believe the instructions are correct in every main detail, but, as we did not write them, readers will understand if we disclaim responsibility for any errors, or differences in descriptive style which might exist! Now, read on..

CONSTRUCTION OF THE FRAME

The base of the frame (Fig.5) is built from four 12½" Angle Girders. Four 7½" Angle Girders 1 are bolted to the inside Angle Girders 2 and are held firm by two 5½" x 3½" Flat Plates 3, which support two 9½" Angle Girders 4 (see Figs. 1 and 5). Two 4½" x ½" Double Angle Strips 5 are fixed between the Flat Plates 3. Bolted to the inside of the Flat Plates 3 are four 3½" Angle Girders 6 (Figs 4 and 5), spaced from the Plates by three Washers on each Bolt. Two 9½" Angle Girders 7 (Fig.8), are secured to the base and connected to the top of the Plates 3 by 1½" x ½" Double Angle Strips. Two corner Gussets 8 and 8a and two 1½" Corner Brackets are bolted to the Girders 7 as shown in Figs. 1 and 8 To the Corner Gusset 8a two 1" x 1" Angle Brackets are fixed, and these, together with two Girder Brackets 9, form the bearings for the driving shaft 24 to the heald tappets. Two 7½" compound girders 10 (Fig.8), are bolted to the base and to the 9½" Angle Girders 4, and are braced to the base by 3½" strips. At the other end of the base two 7½" compound girders 11 are fixed. These support the *breast beam* which is a 5½" Angle Girder 12. To the girders 11 are also bolted two 4½" Strips 13 spaced from the girders by four

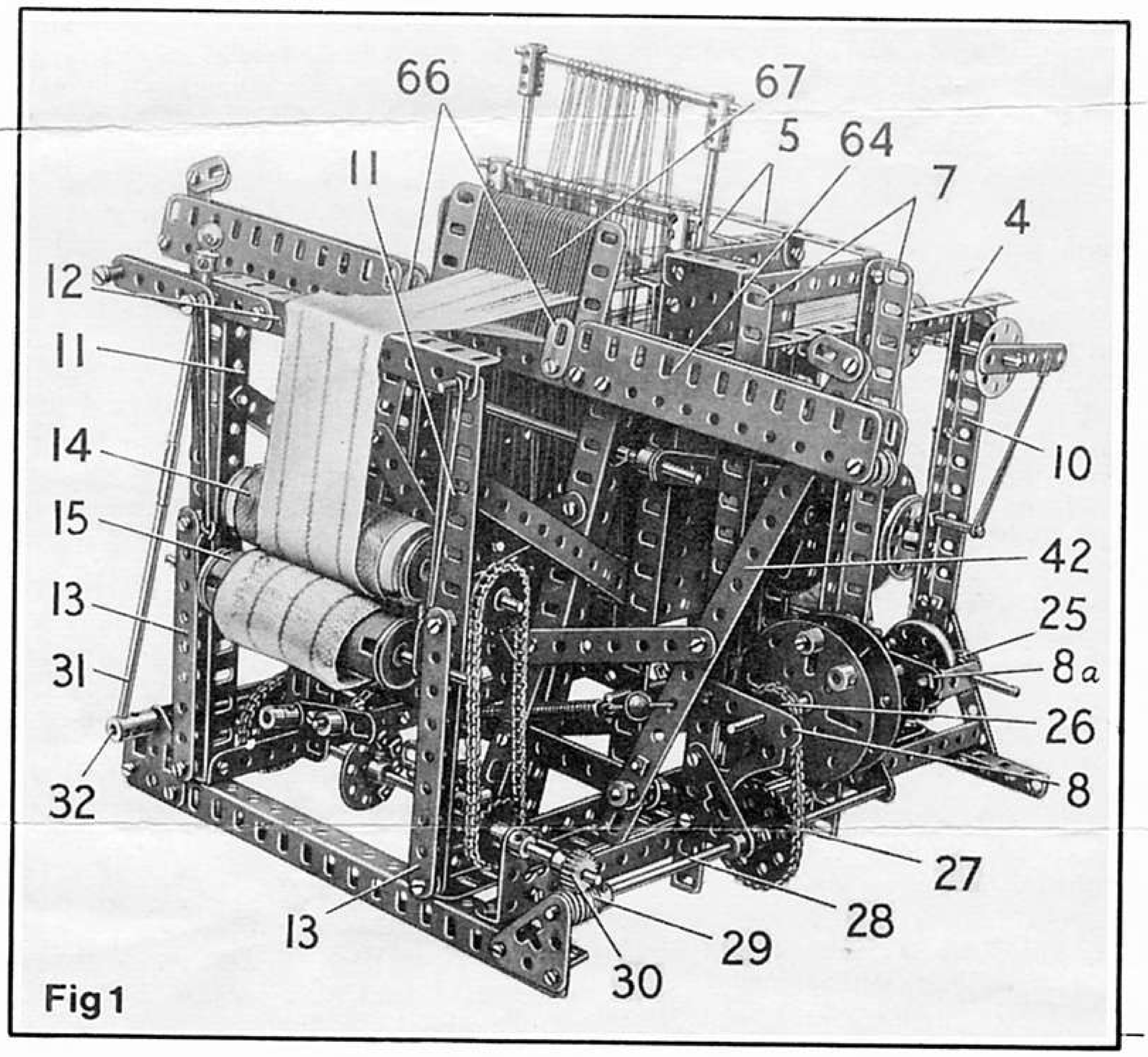

Fig 1

The above illustration is a reprint of one of eight highly-detailed photographs which appear in the July 1974 issue of the Meccano Magazine Quarterly.

Washers on each of the Bolts. A lock for the Motor starting handle is a 2½" Strip mounted on Pivot Bolts and held by Compression Springs against a 3½" Strip bolted to the side of the Girder 12 (Fig.1.). The sand roller 14 which is a Wood Roller with rough sand paper glued around is held between 1" Pulleys on a Rod mounted in the girders 11.

The take-up Roller 15 is mounted on a Rod between 1" Pulleys and the Rod slides between girders 11 and the Strips 13. This Roller is held against the sand roller 14 by the tension of two Driving Bands. These are attached to Fishplates slipped over the ends of the lower Roller Rod, and the Bands are anchored at their upper ends to the Pivot Bolt and ½" Bolt fixing the Girder 12 in position. The breast beam is braced by two 5½" Strips 16 placed as shown in Fig.2.

THE DRIVE

An E15R Electric Motor is bolted to one of the angle girders 10 (Fig.8) and is supported also by a 2½" Strip 62 (Fig.5) bolted to the base, and a 3½" Strip attached to a vertical 7½" Strip 63. A 2½" x ½" Double Angle Strip is bolted to the inner sideplate of the Motor and to one of the Girders 2. A ¾" Bolt is used to fasten 2½" Strip 62 and the 3½" Strip to the Motor, and this Bolt acts also as a stop to prevent the Motor starting lever from going into reverse (Fig.5). A ½" Pinion on the Motor shaft engages with a 57-tooth Gear, on the shaft of which another ½" Pinion .17 drives a 57-tooth Gear on Rod 19, which also carries a 1" Sprocket.

A Chain from this drives another 1" Sprocket 20 on Rod 18, which also carries a ½" Pinion that engages a 3½" Gear Wheel 21 on Rod 22 (Fig. 8). Rod 18 is supported in Strip 63 (Fig. 5), and one of the Flat Plates 3. Rod 22 (Fig. 8) has a 2" Sprocket 23 at its centre, and a 2½" Gear is fixed to the Rod at the opposite end to the Gear 21.

The 11½" Rod 24 carries at its centre a 2" Sprocket, which is connected by Chain to Sprocket 23, a ¾" Pinion 25 at one end and a ¾" Sprocket 37 (Fig.5) at the other end.

HEALD FRAME TAPPET CAMS.

The two cams that operate the heald frame tappets each consists of a Face Plate 56 (Fig.8), fitted with a Threaded Boss and a ½" Bolt carrying six Washers. These Face Plates are mounted as shown with the Threaded Bosses diametrically opposite to each other on a Rod supported in the Corner Gussets 8 and 8a, and the Rod carries also a 1½" Contrate that is driven by the Pinion 25. This Rod carries also a ¾" Sprocket 26 (Fig.1.), which drives a 1½" Sprocket 27 on Rod 28. Rod 28 is mounted in the Corner Brackets previously mentioned as bolted to the Angle Girders 7 and in another Corner Bracket fixed to the end of the base. This forms the drive to the sand roller, through a Worm 29 that engages a ½" Pinion 30. The Rod on which Pinion 30 is fixed is mounted in a 1½" Corner Bracket, and in a 1½" Strip bolted to one of the girders 11. A 1" Sprocket on this Rod is connected by Chain to a 1" Sprocket on the Rod of the sand Roller 14.

The Motor is started and stopped from a control handle 31, which is a Rod fixed in a Threaded Coupling 32. An 11½" Screwed Rod is locked by a nut in the Coupling, and at a point about one inch from the other end of the Screwed Rod a Threaded Crank is fixed to it with two Nuts. The end of the Screwed Rod is supported in a 1" x 1" Angle Bracket held by Bolt 33 (Fig.5) to the base. A ½" Bolt in the Motor starting lever engages with a 1" x ½" Angle Bracket bolted to the arm of the Threaded Crank.

THE PICKING CAMS

The shuttle is "thrown" to and fro along the shuttle race or guide of the slay 64 (Fig.1), by the action of picking sticks 42, which in turn are actuated by cams. Each of these two cams consists of four Collars bolted in four adjacent holes of a Bush Wheel 34 (Fig.5), secured on a Rod 36. The entire slay assembly rocks to and fro on this Rod 36, A ¾" Sprocket 37 drives a 1½" Sprocket 35 and rotates the cams in an anti-clockwise direction. It is important to note that these cams also are set at 180° to each other, that is with the Collars in each cam diametrically opposite.

THE SLAY AND SHUTTLE RACE

The shuttle race is made in two sections. Each of these is built up by placing on a ¾" Bolt 38 (Fig.4) the following parts, in the order given starting from the head of the Bolt: a 5½" Flat Girder, a 9½" Strip, a Washer, a 5½" Strip, two Washers, a 5½" Strip, two Washers, a 5½" Strip, two Washers, a 5½" Strip, a 9½" Strip, a Washer and a second 5½" Flat Girder. The two sections thus assembled are then placed together so that the 9½" Strips of one section overlap the same strips of the other section by nine holes. The two sections are then connected together by the 1.1/8" Bolts 39 and 39a (Fig.4). The 5½" Strips of the sections are spaced apart on these Bolts by Washers, and in addition to the 5½" Strips the Bolts support three 4½" Strips 65 placed face to face at the exact centre of the shuttle race. Two fishplates 66 (Fig.1) are fixed to the front edge of the shuttle race at the inner ends of the Flat Girders.

The reed 67 (Fig.1) is built from 2½" Strips, which are spaced with Washers on two 3" Screwed Rods and edged at each side with a 2½" Angle Girder as shown. This unit is then bolted to the centre of the shuttle race. The Shuttle race is attached by Bolts 39 and 39a (Fig.4), to two 7½" Angle Girders, which are pivoted at their lower ends on the Rod 36 already mentioned. The Girders are braced by two crossed 5½" Strips 40 (Fig.2). Two 9½" Strips 41, placed face to face, and bolted centrally across the 9½" Angle Girders and a

Crank is bolted to each end of the Strips.

Each picking-stick 42 (Fig.2), is a 7½" Strip, and it has a Fishplate fixed to its upper end as shown and a Double Arm Crank to its lower end. The Double Arm Crank of each picking stick is held by a Collar on a 1½" Rod fixed in the Crank at the end of the Strips 41.

The picking sticks are operated by Bell Cranks 44, which are free to turn on 1" Rods fixed in Rod Sockets bolted to the lower ends of the 7½" Angle Girders that support the shuttle race. The Bell Cranks are held on the 1" Rods by Collars, and one arm of each is extended by a 3" Strip 47, and a Double Arm Crank 45 is bolted to the other arm. A 1½" Rod 46 is fixed in the Double Arm Crank and support the cam 34. The upper ends of Strips 47 are connected to the picking sticks 42 by 3½" Strips 48, pivoted on the locknutted bolts. The force with which the picking sticks operate is controlled by Springs 49. Each is bolted to strips 41 and connected by a small Loaded Hook to the picking stick. The slay is linked by Strips lock-nutted to Gears on Rod 22 and fitted with Cranks 50 fixed on Rod 51.

THE BEAMING FRAME

Assuming that the Loom has been built up to the stage so far described, the next operation is the construction of the Heald Frames. These are the frames that hold the Healds through which the warp threads are passed from the beam. They are actuated by the cams 56 and rise and fall to provide the "shed" through which the shuttle carrying the weft thread passes.

On a 4" Rod (bottom) and a 4½" Rod (top) 30 Healds should be placed, with a Coupling on each end of each Rod. The Couplings are joined together lengthwise by 5" Rods, and these must be passed through the top 3½" Angle Girders 6 before the Rods are fixed in the Couplings. The lower Couplings carry 3½" Rods to extend the 5" Rods lengthwise, and an End Bearing 52 (Fig.8), is secured to the bottom of one of the Rods. A 7½" Strip 53 is pivoted between the lugs of the End Bearing, and the Strip is *lock-nutted* to a Fishplate 54 pivoted on Rod 55. The Fishplate is *lock-nutted* in the 10th Hole of the Strip 53, counting from the end Bearing. Spring Clips are used to space the Fishplates and hold the Strips 53 in line with cams 56.

After being raised by the action of the cams, the Heald Frames are returned to their lowest positions by the tension of 2½" and 6" Driving Bands looped together and anchored on a Rod 57 (Fig.8), and the bottom of the Heald Frames. The Heald Frames should move very freely on depressing Strips 53.

THE WARP TENSION MECHANISM

A simple mechanism is provided to keep the warp threads at a suitable tension. This is shown clearly in Figs. 4 and 8. Two Bush Wheels are fixed to Rod 58, with a 3" Rod 59 mounted in holes in the Bush Wheels. A Bush Wheel extended with a 3" Strip is fixed to the end of Rod 58. A 6" Driving Band looped between the 3" Strip, and a 1.1/8" Bolt fixed to the frame imparts the required tension to the warp threads while the Heald Frames are moving up and down. A Cord, slightly tensioned with a Spring and passed over a 1½" Pulley 61, maintains tension on the warp beam.

THE SHUTTLE

Construction of the shuttle, which is shown in Fig.6, is quite simple. It consists of two 3½" Strips, two End Bearings and a 1½" Rod. The ends of the Strips are bent slightly to fit the lugs of the End Bearings. A 3/8" Bolt, which should for preference be filed slightly shorter, is passed through the end hole of one of the strips and then through the lugs of an end Bearing. A Washer is placed on the Bolt between the lugs of the Bearing, and the Bolt is then passed through the end hole of the other 3½" Strip. This process is repeated at the other ends of the Strips.

A 1½" Rod that forms the spindle on which the weft thread is wound, is held loosely in the bosses at the End Bearings, and is retained in place by stops made by screwing the grub screws right down. *The grub screws must not grip the rod.* The sides of the shuttle must be parallel and the completed shuttle must be an easy sliding fit in the shuttle race. When it is in position in the race the picking sticks must strike the shuttle nose centrally.

Carefully wind some "weft" thread on the shuttle spindle, keeping it in the centre portion of the Rod. Do not try to put too much on at one filling, and make sure it will run off perfectly freely, otherwise the shuttle may "stick" between the warp threads. The thread is then brought out from the shuttle as shown.

BEAMING FRAME

Fig. 3 shows a simple Beaming Frame suitable for preparing the beam of warp threads ready for insertion in the loom. The base of the frame is a 5½" x 3½" Flat Plate, fitted at each side with a 5½" Angle Girder 1 that supports a 5½" x 2½" Flat Plate. A Rod 2 carries the beam 3 on which the threads are wound.

A handle 4 is fitted to one end of the Rod, 2 and the other end carries a Ratchet Wheel 5. A Pawl 6 on a Pivot Bolt engages the teeth of the Ratchet Wheel. The Pawl is weighted by Washers on a 3/8" Bolt screwed into its Boss.

The reed or frame 7 consists of 31 2½" Strips spaced apart by Washers on two Screwed Rods, and is supported in the 5½" x 2½" Flat Plates by Collars on two Rods 8.

Now knock two nails into a wall, a few yards apart, and then wind around them 30 turns of thread. These are now taken off the nails, carefully, and cut at one end. You will then have 60 separate lengths of thread. The threads are now drawn through the reed, two threads between each pair of strips, and with one knot are secured to the centre of the beam axle, Holding the threads tightly in

the left hand, wind them on to the beam; the reed will space the threads evenly between the Face Plates. A little practice will soon produce a neat beam.

DRAWING THE WARP

Put the prepared beam in the loom. Take the first thread, pull it through the *first* heald on the *front* frame, then the second thread and pull it through the *first* heald on the *back* frame. These two threads are drawn through the *first* division or dent in the reed. Continue in this way using each dent until all the threads are drawn through. Lightly brush and pass them around the upper roller and secure them to the take-up roller by means of the Rod placed in its groove.

TIMING THE LOOM

The mechanism must be set so that, when the slay is at back centre, one heald frame is in its highest position and will stay up until the shuttle has passed through the warp threads. The picking stick motion should then come into action just before the slay reaches back dead-centre, and should shoot the shuttle across to reach the other end just as the slay leaves back dead centre. A little time spent in careful adjustment will soon give the desired position for smooth running.

COMPONENT CHANGE

This, then, completes the building instructions as originally printed (we're back to "us" on the MMQ now, by the way!), but as mentioned in the July Magazine, an important component change has taken place since the Loom was first designed; The Meccano Heald, Part No. 101, has been discontinued. The Meccano engineer is never beaten, though, and a specially-designed machine for making your own healds is featured on Page 72 of the July MMQ. Please note, however, that in the following Parts List for the Loom - copied from the original article - we have left the old Part Number in place for identification purposes.

Talking of the Parts List, we should finally mention that this applies only to the Parts required for the Loom, itself. The Beaming Frame is not included. For this, we must repeat the statement printed in the original feature: "The parts used in the Beaming Frame should be clear from the illustration."

PARTS LIST

6- 1a	6-15	154- 38	4-103
5- 1b	5-15a	3- 43	2-106
14- 2	2-15b	2- 48	3-108
5- 2a	6-16	5- 48a	4-109
9- 3	1-16a	2- 48c	3-111
3- 4	4-16b	2- 52a	6-111a
33- 5	5-18a	3- 57c	24-111c
1- 6a	2-18b	24- 59	3-111d
4- 8	2-21	4- 62	2-120b
6- 8a	4-22	1- 62a	1-126a
4- 8b	1-23a	4- 62b	2-128
9- 9	5-24	8- 63	4-133
2- 9a	1-25	1- 63c	1-136a
6- 9b	4-26	2- 64	1-144
2- 9d	2-27a	1- 78	2-147b
10-10	1-27b	2- 80c	2-161
1-12	1-27c	2- 94	4-166
3-12a	1-28	2- 95	2-179
1-12b	1-32	2- 95a	2-186
1-13	12-35	4- 96	5-186a
3-13a	172-37a	2- 96a	1-213
4-14	120-37b	60-101	

E15R Electric Motor

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